



INSTITUTE FOR DEFENSE ANALYSES

Implications of Defense Budget History for Acquisition Budget 2010-2020

Alan H. Shaw
Gene H. Porter
Frank A. Tapparo

December 2009
Approved for public release;
distribution is unlimited.
IDA Document D-3995
Log: H 09-001695



The Institute for Defense Analyses is a non-profit corporation that administers three federally funded research and development centers to provide objective analyses of national security issues, particularly those requiring scientific and technical expertise, and conduct related research on other national challenges.

About this Publication

This work was conducted by the Institute for Defense Analyses (IDA) under contract DASW01-04-C-0003, Task A0-6-3022, "The Potential Impact of Future Defense Spending Changes on Acquisition and other Components of the Defense Program," for Director, Acquisition Resources and Analysis (OUSD(AT&L)). The views, opinions, and findings should not be construed as representing the official position of either the Department of Defense or the sponsoring organization.

Copyright Notice

© 2009 Institute for Defense Analyses, 4850 Mark Center Drive, Alexandria, Virginia 22311-1882 • (703) 845-2000.

This material may be reproduced by or for the U.S. Government pursuant to the copyright license under the clause at DFARS 252.227-7013 (NOV 95).

INSTITUTE FOR DEFENSE ANALYSES

IDA Document D-3995

**Implications of Defense Budget History
for Acquisition Budget 2010-2020**

Alan H. Shaw
Gene H. Porter
Frank A. Tapparo

PREFACE

This document reports the work performed by the Institute for Defense Analyses for the Director, Acquisition Resources and analysis (OUSD(AT&L)) in partial fulfillment of the task entitled “The Potential Impact of Future Defense Spending Changes on Acquisition and other components of the Defense Program.”

The authors wish to thank the reviewer, Mr. Michael L. Dominguez, Division Director, Strategy, Forces & Resources Division.

CONTENTS

Summary	S-1
I. Introduction	1
II. Historical Cycles and Trends 1962-2009	5
A. Budget Basics.....	5
B. Historical and Strategic Context	7
1. Drivers: Strategy, Events, Political Trends?	8
C. Trends in Major Spending Accounts	16
1. Absorbing Cuts: Accompanying Trends in End Strength, Force Structure, Defense Industrial Base	20
D. Historical Lessons: setting the context for 2009-2030	25
1. Post Cold War Strategy Development and Current Parallels	25
III. Projecting the Defense Budget 2010-2030	37
A. Context: Administration initiatives, budget, projections	37
B. Budget projections	44
IV. Strategies for Avoiding or Mitigating Acquisition Budget Problems	51
A. Controlling MILPERS and/or O&M to Free Up Funding for Acquisition.....	51
1. Review/Revise the Mix of Active Duty Forces and Guard/Reserve Forces.....	51
2. Reduce Readiness Levels in Selected Units	52
3. Shift the Mix of Force Types	53
4. Reform Maintenance and Support of Operations: Exploit Commercial Practices	54
5. Greater Reliance on, and Integration with, Allies.....	55
6. Design Equipment for Reduced O&M Costs.....	56
B. Managing the Acquisition Budget	56
1. Determine a Range of Viable Future Acquisition Profiles, and Design a Long-Term Acquisition Program that Fits within that Range	56
2. Suggested Technological Focus: Greater Reliance on Robotics	58
3. Focus Technology More on Reducing Cost and Less on Improving Performance	59
V. Final Observations	61
Appendix A List of Acronyms.....	A-1

TABLES

Table 1. Projections	61
----------------------------	----

FIGURES

Figure 1. Long Term Trends in Defense Outlays	5
Figure 2. Major Similarities among Historical Periods	10
Figure 3. President's Budget and Appropriations in Current Dollars 1965 - 1980	13
Figure 4. President's Budget and Appropriations in Constant Dollars 1965 - 1980	14
Figure 5. President's Budget, Appropriations & DoD Projections.....	15
Figure 6a. Outlays by Fiscal Year in Millions of FY2000 Dollars.....	16
Figure 6b. Outlays by Fiscal Year in Millions of FY2000 Dollars (Procurement & RDT&E Combined)	16
Figure 7. Personnel, O&M, and Acquisition as Fractions of DoD-Military.....	17
Figure 8. Gross Force Structure & Spending Indicators.....	20
Figure 9. Major Reductions in the Defense Industrial Base	21
Figure 10a. Cost Per Active Duty Service Member	22
Figure 10b. Department of Defense Budget Authority per Active Duty Troop	23
Figure 11. Historical Context.....	25
Figure 12. Major Budget Priorities	32
Figure 13. President's Budget FY2010.....	34
Figure 14. Crude Extrapolation of Historical Budget Cycles through 2029.....	35
Figure 15. Projections from President's Budget FY2010.....	37
Figure 16: Congressional Budget Office Defense Budget Projection	38
Figure 17. Military Pay and Benefits per Active Duty Troop Indexed to FY1972	40
Figure 18. Trends in Operation and Maintenance Funding per Active Duty Service Member	40
Figure 19. Operation and Maintenance Funding per Active Duty Troop, FY1955-FY2013	41

Figure 20. O&M Costs Per Service Member in Constant FY2008 Dollars.....	43
Figure 21. Modest Real Growth. 1% Per Year Real Growth, BA in Constant Billions of FY2009 Dollars.....	45
Figure 22. Zero Real Growth, BA in Constant Billions of FY2009 Dollars	45
Figure 23. Projections of Acquisition Budget as a Function of Assumptions Regarding Overall (topline) Defense Budget	46
Figure 24. Another perspective: Topline Required to Reproduce Historical Acquisition Profiles	47
Figure 25. National Security Outlays.....	48

SUMMARY

Twice in the past half century the defense budget has undergone a 30-40%, decade-long decline, followed by a recovery of similar duration and magnitude. The first downturn began in 1969 as the US began to wind down the Vietnam War; the second began twenty years later as the Cold War ended. Both downturns were accompanied by broad reassessments of the national security strategy. Indeed the roughly sinusoidal shape of the plot of budget topline vs. time suggests major political and strategy changes at work. An examination of major political and economic factors shows strong similarities in 1969, 1989, and now in 2009, except that a broad new approach to national security strategy planning has yet to emerge.

History is not required to repeat. Indeed, a new budget cycle that closely traces the previous two would lead—almost inevitably—to a budgetary catastrophe in the period 2015-2025. However, history can be very instructive and help decision-makers to anticipate reasonable futures, understand the major forces forming the future, and craft practical strategies for avoiding major problems.

These major historical cyclic variations have demonstrated a close relationship between active duty military end strength and operations and maintenance costs. In addition there has been steady long-term increases in the military personnel cost per active duty Service member. In past cycles the increases in pay and benefits have been largely offset by reductions in total active duty end strength, so that the overall military personnel (MILPERS) budget has exhibited a long-term small decline. Operations and Maintenance (O&M), however, generally increased faster than end strength declined. As a result of these trends and of the recent commitments to increases in active duty end strength, MILPERS plus O&M costs are now projected to increase steadily for the foreseeable future.

The combination of topline cycles and these long-term personnel-related trends has resulted—in the past—in the topline downturns falling most severely on acquisition budgets, which have fallen by half to 2/3. In each of the previous cycles, some of the downturn was also absorbed through reducing end strength, rationalizing force structure in light of reduced end strength, and (some form of) demobilization.

These measures to cushion the impact on acquisition of falling budgets are not likely to be available should the Department of Defense (DoD) topline enter another period of decline if MILPERS and O&M increase as projected, repeating the acquisition budget profiles of the past two cycles—with their dramatic declines and recovery—will require a topline budget that is at least flat (in constant dollars) for the coming decade, and then increases at the rate of 3.6% per year from 2020-2030. Even lower topline budgets without adjustments in the manpower and operations plans would logically impact acquisition plans even more severely than was the case in the past two cycles., e. g. a 2% annual topline decrease for the next decade without other changes could drive the acquisition budget to zero.

Although increasing defense budgets are not impossible, current economic—and overall federal budget—conditions don't make major defense increases appear very likely for the next several years. DoD may want to consider some combination of: (1) measures to control O&M and MILPERS in order to make more money available for acquisition; and (2) careful management of (limited) acquisition resources to maximize the benefit of funding that is available. An old adage asserts, however, "If you don't know where you are going, any road will get you there." Accordingly, which—if any—of these possible resource allocation strategies should be informed and guided by a clear and compelling national military strategy containing sufficient detail to guide resource decision making. The authors presume that the result of the current Quadrennial Defense Review will meet that need. Development of such a resource allocation strategy, and of a supporting consensus within the Congressional leadership, would seem, therefore, to be prerequisite to the following actions. The actions described here are, in the judgment of the authors, most likely to provide defense managers the greatest opportunity. This is not, however, an exhaustive list.

Controlling MILPERS and/or O&M to Free Up Funding for Acquisition

- Review/revise the mix of active duty forces and guard/reserve forces
- Reduce readiness levels in selected units
- Shift the mix of force types
- Reform maintenance and support of operations: exploit commercial practices
- Greater reliance on, and integration with, allies
- Design equipment for reduced O&M costs

Managing the Acquisition budget

- Determine a range of viable future acquisition profiles, and design a long-term acquisition program that fits within that range
- Consider “skipping a generation” of modernization of major equipment
- Focus technology more on reducing cost and less on improving performance
- Suggested technological focus: Greater reliance on robotics

I. INTRODUCTION

From strategic, economic, and budgetary perspectives—all of which bear strongly on the defense budget—the current situation has a strong resemblance to two earlier periods of recent history: (1) the end of the Cold War about twenty years ago; and (2) the period that began forty years ago, during which the US wound down its involvement in the Vietnam war. 1969 and 1989 began dramatic ten year declines in defense spending, over which real spending power declined by roughly 40% and 30%, respectively before beginning—in each case—a ten year recovery. For reasons that will be explored in this paper, the cuts fell disproportionately on acquisition budgets, which declined as much as 60%.

It appears—at least as a working hypothesis—that the overall budget “topline”, i.e. budget function 051, DoD-military—is driven by “higher level” political and national security planning considerations, while two of the three major spending categories—MILPERS and O&M—are determined by fairly fixed factors like end strength, major equipment inventories, deployments and commitments.¹ As a result, most of the topline changes are absorbed by acquisition (i.e. procurement and Research, Development, Test, and Evaluation (RDT&E)). The 20-year cycles that appear in the top line are mirrored in all three major categories, but the variations are far less pronounced in MILPERS and O&M than they are in acquisition.

History is not required to repeat. However, history can be a reasonable indicator of the future, particularly when current conditions closely resemble those of the past. Moreover, history can provide valuable lessons about the results of responses to those conditions. It is important to note however there currently is not the degree of public and political consensus on the need to reduce total defense spending that existed after Vietnam and the Cold War, in part because of the lack of similar high level political debates on the topic.

The defense budget will not necessarily face the same reductions 2009-2019 as it did 1969-1979 and 1989-1999. Indeed, for reasons that will be explored in a later section, it is hard

¹ DoD builds its budget largely from the bottom up, by asking what is needed and then summing. Congress works differently. Budget resolutions provide funding targets for the Appropriations subcommittees—such as the Defense Appropriations Subcommittee. These targets are also available to the authorizing committees. OMB works a complex process that takes into account what DoD says it needs, what it expects Congress is likely to provide, and the President’s overarching priorities.

to believe that comparable swings will ensue: simply projecting historical cycles forward would drive acquisition budgets essentially to zero. Nevertheless, history can be a reasonable indicator of the future, particularly when: (1) the defense budget has been through two consecutive, very similar 20-year cycles; and (2) there are some major similarities among conditions now and conditions at the beginnings of the two previous cycles. Put simply, there is good reason to expect downward pressure on defense spending for the next five to ten years and that pressure will fall very disproportionately on the acquisition budget.

These past budgetary cycles have been accompanied by other historical trends and actions that also affect budget projections and opportunities to deal with changes (principally reductions). The long term trend in the O&M budget has been steadily upward. Of the three major budget categories—along with acquisition and MILPERS—O&M was the smallest in 1969 and is now the largest. During the previous periods of budgetary downturn, measures were taken to absorb the cuts. These were primarily: (1) reduction in active duty end strength; (2) rationalization (principally reduction) of force structure (and associated equipage and operating costs) to be consistent with changes in end strength; (3) redeployments in response to strategic realignments (withdrawal from Vietnam and reduction of presence in North Atlantic Treaty Organization (NATO) Europe as the Warsaw Pact and the USSR dissolved); and (4) restructuring of the defense industrial base. These measures helped absorb topline cuts and provided opportunities to exploit subsequent budget increases, but they have been largely accomplished. These chips have been cashed. In particular, past reductions in active duty end strength were primarily responsible for the long-term downward trend in the MILPERS budget² a situation that is not now on the visible horizon.

The federal debt and associated debt service (i.e. annual interest payments) forms another underlying factor and trend. Federal debt increased dramatically, and almost continuously, beginning in 1981, and has escalated due to the current economic crisis. The Congressional Budget Office (CBO) projects that gross interest payments will exceed the defense budget by 2014, and will equal ~75% of the total federal discretionary spending by 2019. The importance of the load that defense budgets place on the overall federal debt situation is of course a function

² MILPERS rose in the 1970s because of the end of the draft and the switch to the all volunteer force. MILPERS rose dramatically in 2003 in large part because of the activation of National Guard and Reserve units for duty in Iraq.

of the overall state of the economy. Should the economy grow much more rapidly than now expected, the adverse impact of defense spending would be ameliorated.

The Obama administration has announced some further increases in end strength and increases in pay and benefits for Service members. These will inevitably arrest the long-term decline in MILPERS spending and cause it to rise.³ Moreover, unlike the exit from Vietnam and the reductions in presence in Europe after the Cold War, planned reductions in Iraq are being accompanied by increased commitment to Afghanistan. While the current plan is for fewer forces in Afghanistan than were in Iraq at the height of the Iraq involvement, the difference is not great and may be offset by higher O&M costs of sustainment in Afghanistan than in Iraq and by a desire for less strenuous redeployment schedules.

This paper presents historical trends, projects future defense budget trends under several different scenarios, and explores options for limiting the negative effects on the acquisition budget. Those options include both acquisition strategies and options for controlling costs for MILPERS and O&M.

³ This rise may be partially offset by reduction in expenditures for activated Guard and Reserve units.

II. HISTORICAL CYCLES AND TRENDS 1962-2009

A. BUDGET BASICS

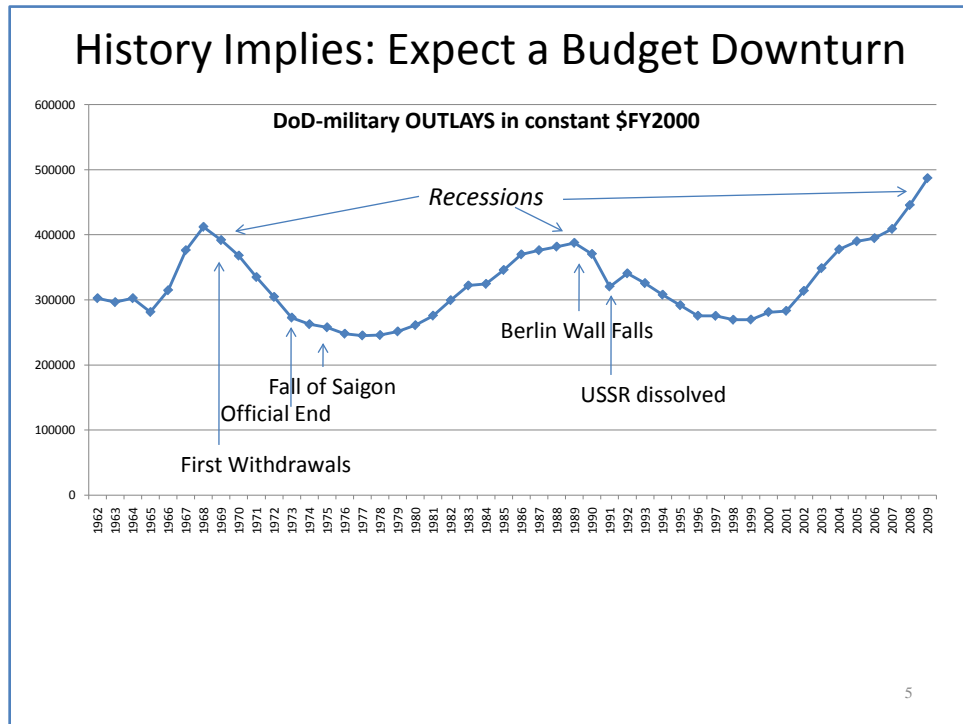


Figure 1. Long Term Trends in Defense Outlays

Figure 1 displays the DoD topline budget outlays for the period 1962-2009, in constant FY2000 dollars. Budget authority (BA) would have provided a truer representation of each year's appropriations, but BA historical tables only go back to 1976. The use of constant dollars allows inflation to be "backed out" in order to provide a comparison of "spending power" year by year. Since inflation has been positive through this entire period, and has fluctuated significantly, a display in "then year" dollars would look quite different. The chart shows total outlays—that is all money spent in each of the years—including all supplementals.⁴

⁴ Note that there are two related apparent anomalies that will also be reflected in other charts. There is an obvious "dip" in 1991, and a related, although not so obvious "bump up" of roughly the same size in 2009. These both arise in the "other" budget category. "Other" is typically a few billion dollars and can be either positive or negative. In 1991 it was roughly -\$40 billion; in 2009 it was roughly +\$40 billion.

The overall trend is cyclic, very roughly sinusoidal with a 20 year period. Since 1968, the budget has gone through two complete, fairly similar, cycles with peaks in 1969 and 1989—implying a peak in 2009—and minima midway between consecutive peaks. The budget at the minima has been roughly one third below the peak budgets. (Or, alternatively, the budget has gained about 50% on each upturn.) Compared to these gross trends, yearly fluctuations are negligible.

From a purely mechanistic perspective, this cyclic behavior suggests a “forcing function” at work within the political process, one in which rising budgets (and accompanying activities) generate public sentiment for downward pressure on the defense budget—pressure to which the President and the Congress respond. Decreasing budgets relieve that pressure, but stoke concerns that the nation may be neglecting defense, which produce pressure to increase the budget.

In very general terms, the history of this period supports that observation. Regarding the first downturn, Jacques Gansler⁵ noted: “The will of the people, who were fed up with the war in Vietnam, was to devote all available resources toward improving the peacetime life of the nation.”

This is, to some extent, an understatement of the public mood when Nixon took office in 1969.

By the late 1970s, Congressional Republicans, conservative Democrats, and other commentators were expressing concern that the Carter Administration had allowed defense spending to fall too far. Ronald Reagan had begun his campaign against Carter alleging, in part, that Carter was “soft on defense.” This began the upturn in the defense budget which then continued throughout the Reagan Administration. The end of the Cold war, coupled with widespread allegations of “waste, fraud, and abuse” during the build-up then produced downward pressure. Ten years later, Clinton, like Carter before him, was accused of being “soft on defense,” and began the next period of increasing budgets. When each of these upturns began, there were demonstrable shortcomings in US defense capabilities.

⁵ Jacques S. Gansler, *The Defense Industry*, (MIT Press, Cambridge, Mass., 1980,) p. 21.

B. HISTORICAL AND STRATEGIC CONTEXT

Taken in isolation, this might be at most an intriguing political science hypothesis or no more than a curious anomaly, and certainly no predictor of future events. However, there are other strong similarities among 1969, 1989, and 2009, and between 1979 and 1999. These imply that the major factors in place at the beginnings of the two previous downturns may well be in place once again.

1969 saw the inauguration of Richard Nixon following a tumultuous campaign that centered on public disenchantment with the war in Vietnam. The unpopularity of the Vietnam war led to Lyndon Johnson's decision not to seek re-election, the chaotic and fractious Democratic convention, and the defeat of its nominee, Hubert Humphrey. Nixon seemingly recognized the strategic implications, and set about on a profound change of course. The Nixon Administration changed US strategy in a manner that, while not overtly driving the defense budget down, was not inconsistent with budget reductions. As Gansler noted, public opinion had turned against the war and against military spending.⁶

Twenty years later, the US was at another strategic turning point. The Cold War was over, and the Soviet Union was headed for collapse. Unlike 1969, this was clearly victory for the US, not a crisis in which the public was disenchanted with US policy and with the performance of the US military. Nevertheless, the nation was in a mood to capitalize on that victory and collect a "peace dividend." The downward pressure on the defense budget was not to punish DoD for not doing its job, but rather because DoD had done its job and the nation was eager to move on from the Cold War. Although the basic motivations of these two periods were very different, the results were the same: downward pressure on the defense budget. The common thread between these two periods may be general weariness with a long period of focus on national security and military spending. The post-cold war strategic shift was recognized by the Chairman of the Joint Chiefs (General Colin Powell), and the Chairman of the Senate Armed Services Committee (Senator Sam Nunn). Both—mostly independent of each other—rewrote military strategy—to include military resource strategy—to reflect the profound strategic changes and anticipate the coming budgetary decline. Neither Powell nor Nunn advocated budget cuts so much as recognized their inevitability and the need to plan accordingly.

⁶ Ibid.

2009 presents a more ambiguous situation. The 2008 election, like the 1969 election was in part a referendum on a long, increasingly unpopular war. However, compared to Vietnam, the Iraq war had required a much smaller commitment of forces, produced far fewer casualties, and resulted in substantially less domestic social disruption, perhaps in large part because it was being fought with volunteers rather than draftees. Moreover, the net redeployment from Iraq and into Afghanistan is much smaller than either the withdrawal from Vietnam or the restationing of forces following the end of the Cold War. Taking a larger perspective, the war is not so much ending as refocusing from Iraq to Afghanistan at lower levels of deployed troops, but not this time at lower overall end strength. Both the post-Vietnam period and the post-Cold War period were exercises in “bringing the troops home,” which 2009-2010 is clearly not.

The future is uncertain, as it was in 1969 and 1989. In all cases, the only thing that is clear (was clear at the time) is that major change is on the way. But is worth noting that at present there is no indication of the same type of major strategic reassessment that took place at the top of the two previous cycles.

1. Drivers: Strategy, Events, Political Trends?

This topic could easily fill a book without coming to any compelling conclusion. The following paragraphs offer a few relevant observations. The first, and perhaps most germane observation is that while understanding the reasons behind these dramatic budgetary trends may be interesting and potentially very useful, the first order problem is how to deal with the budget dynamics. This can be informed by the history of how similar trends were handled in the past. Strategy is clearly intended to drive budgets. However history indicates that during such transition periods strategy has, at least in part, responded to budgetary trends—or at least been accommodated to budget realities—rather than driven the budget. There are two observations behind this. First, in both historic downturn periods, the budget declined before strategy was revised. Second, in the early years of each downturn the Secretary of Defense (SECDEF) was not on-board the budget reductions. Several DoD annual reports, while supporting the President’s budget, typically contained prominent statements to the effect that cuts were increasing risks and couldn’t be sustained. Budget projections typically showed the budget “getting well” in the out-years, not continuing to decline.

President Nixon reformulated US grand strategy, reorienting away from direct conflicts like the Vietnam War in favor of engaging the USSR in arms control and other diplomatic venues, and opening with China. While he may have come into office with this in mind, all of these major elements took years to put into place. Indeed, the Vietnam War continued through his entire first term. It seems at least plausible that Nixon accepted the budget downturns as inevitable and not inconsistent with his strategic reorientation. Economic difficulties and the anti-war social upheavals that helped bring him to office appear to be events that helped drive the downturns.

As the Cold War ended, the chairman, Joint Chiefs of Staff (CJCS) and Senate Armed Services Committee (SASC) wrote sweeping new strategic concepts. At the time, what had ended was quite clear, but what lay ahead was very uncertain. The pre-existing US grand strategy—designed for a bilateral Cold War superpower confrontation—was clearly no longer relevant; what the future threats and strategic context would be were very far from clear. The result was not a new grand strategy, but a strategy for building and sustaining forces for an uncertain future. Experts disagree on whether the US has as yet developed and articulated a new grand strategy. Powell's post-Cold War strategy and Nunn's post-Cold War strategy were, to a large extent, strategies for dealing with declining defense budgets.

The Obama Administration has come into office with a list of defense priorities. Taken together, these are likely to require larger defense budgets, not smaller ones; they are not consistent with the declines in spending power (i.e. budgets in constant dollars) that occurred twenty years ago and forty years ago⁷. These include increases in active duty end strength and in pay and benefits for Service members. Planned withdrawals from Iraq will be at least partially offset by an increasing commitment to Afghanistan. Afghanistan presents support challenges relative to Iraq such as the higher costs of airlift. However, the Administration has also promised to make significant changes in major defense procurement programs, and has begun to do so. How Congress will react to those changes remains to be fully seen. One of the lessons of earlier periods is that—at least during downturns—Congress usually appropriates even less in total than the Administration requests, but such a trend has yet to occur in the current environment. As Figure 2 shows, 2009 shares major similarities with 1969 and 1989.

⁷ The administration has made significant cuts, like the early termination of the F-22 program that act to offset some of the increase inherent in other defense priorities. Thus far, these cuts have been largely in acquisition.

The Current Situation Bears Strong Resemblance to Previous Post-Conflict Periods

	Post-Vietnam Period 1969-1978	Post Cold War Period 1989-1998	Present 2009-
Defining events	Winding down the Vietnam war	Collapse of WTO, USSR Iraq invades Kuwait; Desert Storm	Winding down war in Iraq; Build-up in Afghanistan
Economic conditions	Recession	Recession	Recession
		Financial Crisis: domestic (S&L)	Financial Crisis: domestic and global
	National Debt (\$FY2008): \$2 trillion (roughly constant 1955-1981)	National Debt (\$FY2008): \$7 trillion (\$5 trillion added 1981-1990)	National Debt (\$FY2008): \$10 trillion (\$3 trillion added since 2001; financial crisis expected to add another ~\$2 trillion)
Public/political mood	Consensus for change, “get out of Vietnam” elects Nixon; expectation of peace dividend	Expectation of peace dividend; “world’s sole remaining superpower”	Consensus for change, including end to Iraq war; concern focused on economy

Figure 2. Major Similarities among Historical Periods

The similarities among the post-Vietnam period, the post-Cold War period and the current situation—i.e. the post-Iraq war period—extend beyond mechanistic budget plots. Indeed, these other similarities suggest causative factors behind the budget cycles, and therefore suggest what may happen over the coming decade. In projecting and analyzing by analogy, it is important to keep in mind that we can compare three points: roughly 1969, 1989, and 2009; and we can compare the aftermaths of the first two, i.e. the post-Vietnam and post-Cold War periods. We have three sets of similar starting conditions, and two historical evolutions. We can only project what may happen in the analogous period now beginning. Moreover the implications of the ongoing US efforts to combat terrorists worldwide for future US defense budgets is by no means as clear as were the implications of the end of the Vietnam and Cold wars.

As was discussed above, all three years are strategic watersheds, involving exit from a major conflict. All three involve major force redeployments. As the US decided to wind down involvement in Vietnam, the strategic focus remained the Soviet Union, but the strategy for dealing with the USSR would be profoundly altered. When the Cold War ended, that focus

rapidly went away, resulting in a search to define another. If one believes that the focus of US strategy is promoting democratic values or combating terrorists worldwide, then the current redeployment can be viewed as a shift of venue following a successful (if messy) campaign in Iraq. Another view is that this is a shift of focus from one second-order concern to another. Either way, the redeployment from Iraq to Afghanistan, while important, may not carry the strategic import of either of the preceding two periods.

All three strategic watersheds were accompanied by economic problems: recessions in all three cases, and financial crises in two cases. Major economic problems stress the federal budget and put pressure on the Administration and Congress to control spending, to include relieving economic suffering at home. The public, in general, is less willing to support defense spending when there are major priorities closer to home. Congressional supporters of strong defense spending can be counted to make the argument that defense spending—particularly acquisition spending—constitutes a domestic jobs program, and therefore aids in remedying economic ills. Similar arguments are made about the importance of preserving the defense industrial base against an uncertain future. In the past such arguments have not been entirely successful; the biggest defense cuts have been in acquisition.

Federal debt, which has been increasing more or less monotonically since the Vietnam period, is another factor in federal budget debates. As total debt increases, so does annual debt service. Since servicing the debt is not discretionary spending, debt service comes “off the top” of the revenue stream, reducing funds available for discretionary spending, the largest piece of which is defense.

During the two periods of defense budget decline—1969-1979, 1989-1999—the President’s budget asked for less than SECDEF requested, and Congress appropriated less than the President’s budget requested. Through most of those two periods, through six different SECDEFs, the SECDEF’s annual report warned that the defense budget was in danger of becoming dangerously low, and future year projections—presumably the basis for planning—typically showed budgetary increases, which were not borne out by subsequent budgets.

The following provides very short summaries of relevant themes from the SECDEF annual reports during the post-Vietnam downturn.

- FY 1970-Clifford⁸
 - Hopeful signs: we are going from battlefield to the conference table both regarding Vietnam and strategic arms talks with USSR
 - Additional funds may be needed
 - Higher-than-planned MilPers, O&M
- FY 1971-Laird⁹
 - “Rock-bottom” budget
- FY 1972-Laird¹⁰
 - Lowest defense part of gross domestic product (GDP) in twenty years
 - Procurement down in real terms from FYs 1970-71
 - Emphasized DoD able to do its missions, but readiness suffers
- FY 1973-Laird¹¹
 - Vietnam war is now “Vietnamization”
 - Efficiency measures enacted
 - Delays in Congressional enactment extend over fiscal years
- FY 1974-Richardson¹²
 - Defense budget smallest share of national resources since 1950s
 - Inflation is diminishing purchasing power; 10% below 1964 in real terms
 - All Volunteer Force increases military pay 135% between 1964-74
- FY 1975-Schlesinger¹³
 - Focus on how little is being spent
 - Increases consumed by pay and price increases
 - Spending less with regard to GDP, federal and public spending
 - Budget fulfills worldwide obligations: United States bears principal burden of defending Free World

⁸ “Annual Report to the President and the Congress,” Secretary of Defense Clark M. Clifford, 1970.

⁹ “Annual Report to the President and the Congress,” Secretary of Defense Melvin R. Laird, 1971.

¹⁰ “Annual Report to the President and the Congress,” Secretary of Defense Melvin R. Laird, 1972.

¹¹ “Annual Report to the President and the Congress,” Secretary of Defense Melvin R. Laird, 1973.

¹² “Annual Report to the President and the Congress,” Secretary of Defense, Elliot L. Richardson, 1974.

¹³ “Annual Report to the President and the Congress,” Secretary of Defense James S. Schlesinger, 1975.

Through six years and four SECDEFs, there is a consistent theme that defense is being under-funded. This may have been something of a hard sell, since, as Figure 3 illustrates, appropriations in then-year dollars declined little and then began to increase during this period. Despite SECDEF's warnings, as Figure 4 shows, actual spending power declined in the President's budget, and was further reduced by Congress.

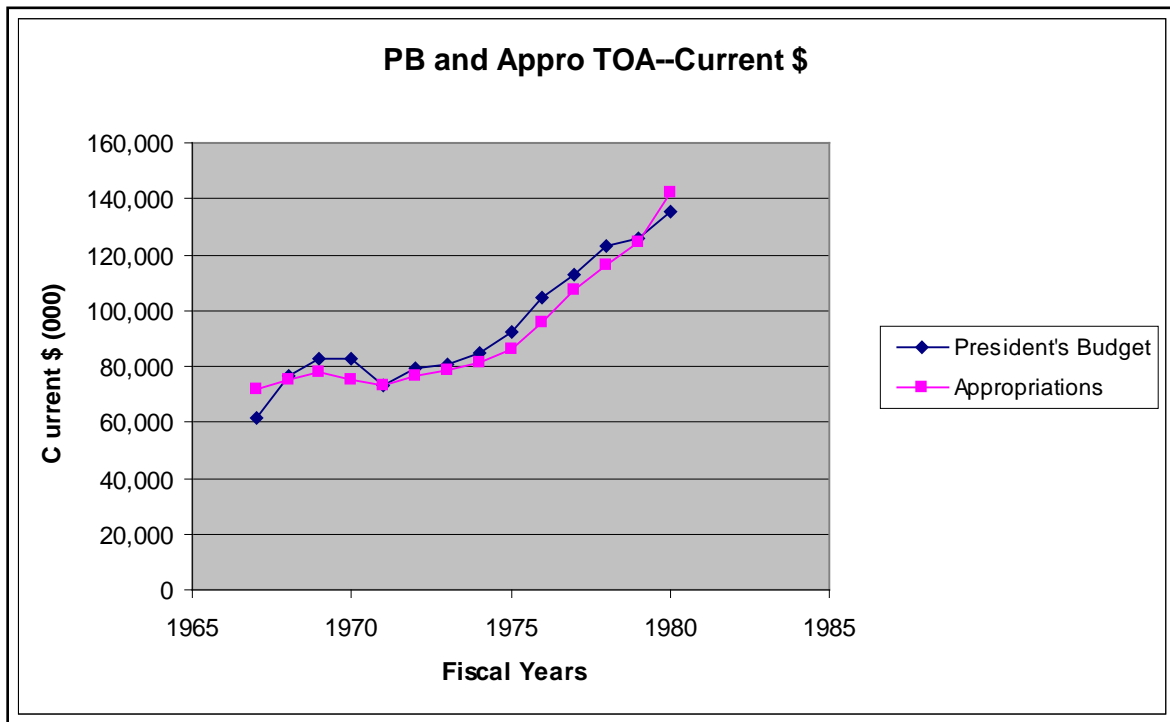


Figure 3. President's Budget and Appropriations in Current Dollars 1965 - 1980

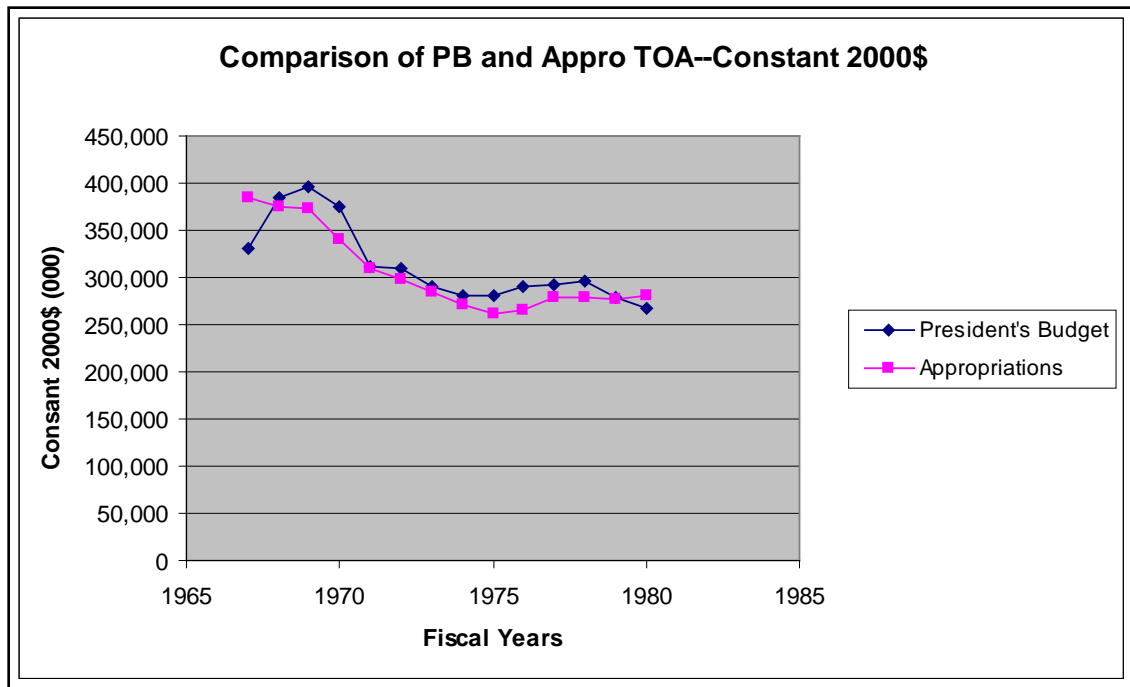


Figure 4. President's Budget and Appropriations in Constant Dollars 1965 - 1980

Similar trends are apparent for the post-Cold War period, as the following themes from annual defense reports illustrate:

- January 1988: FY89 (Carlucci)¹⁴
 - Defense spending needs to increase and hasn't
 - Strategy focused on USSR (direct defense, threat of escalation, threat of retaliation) plus Low Intensity Conflicts
- January 1989 FY90/91 (Carlucci)¹⁵
 - "continuing funding restraints" = "increased risks"
 - "security lessons of the 1980s" regarding USSR
- January 1990 (Cheney)¹⁶
 - "we have a responsibility not to get ahead of events"
 - Focus on USSR, plus turbulence, low intensity combat, drugs

¹⁴ "Annual Report to the President and the Congress," Secretary of Defense Frank C. Carlucci, 1988.

¹⁵ "Annual Report to the President and the Congress," Secretary of Defense Frank C. Carlucci, 1989.

¹⁶ "Annual Report to the President and the Congress," Secretary of Defense Richard B. Cheney, 1990.

Figure 5 compares the President's Budget (PB), appropriations, and the DoD projections of future budgets from two annual reports:

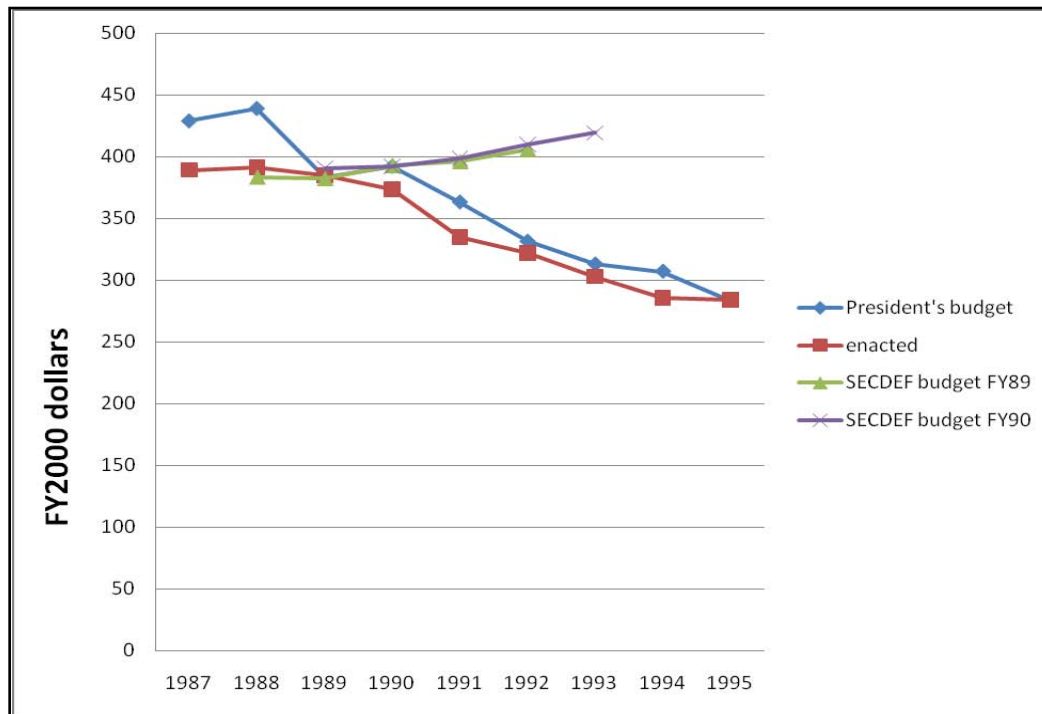


Figure 5. President's Budget, Appropriations & DoD Projections

By the summer of 1990, SECDEF Cheney had endorsed the base force. Subsequent reports, statements and budget projections were more closely aligned with budget realities.

As in the earlier downturn, despite White House defense cuts, Congress consistently appropriated less than was requested in the President's budget.¹⁷ FY89 and FY90 DoD budget projections proved wildly out of line with reality as it developed. (However, the FY91 DoD budget projections were much more closely aligned with the numbers that wound up in the President's budgets for FY92-95.)

¹⁷ A credible analysis of why this happens is beyond the scope of this study. The usually relatively small differences between PB and enacted appropriations may mask larger and more significant differences that arise from combinations of Congressional additions to some parts of the budget request and reductions to other parts of the budget request, which are, to some degree, offsetting. Some hypotheses focus on the different processes for making budgetary decisions. The DoD process is a methodical "bottom up" process that involves large numbers of officers over several years and seeks to accommodate a very long list of complementary and competing demands. The Congressional process is more (but not exclusively) "top down", and is implemented by a much smaller number of people over a few months. DoD budgeting is responsive to Service and other organizational interests, while the Congress responds to public and corporate interests.

C. TRENDS IN MAJOR SPENDING ACCOUNTS

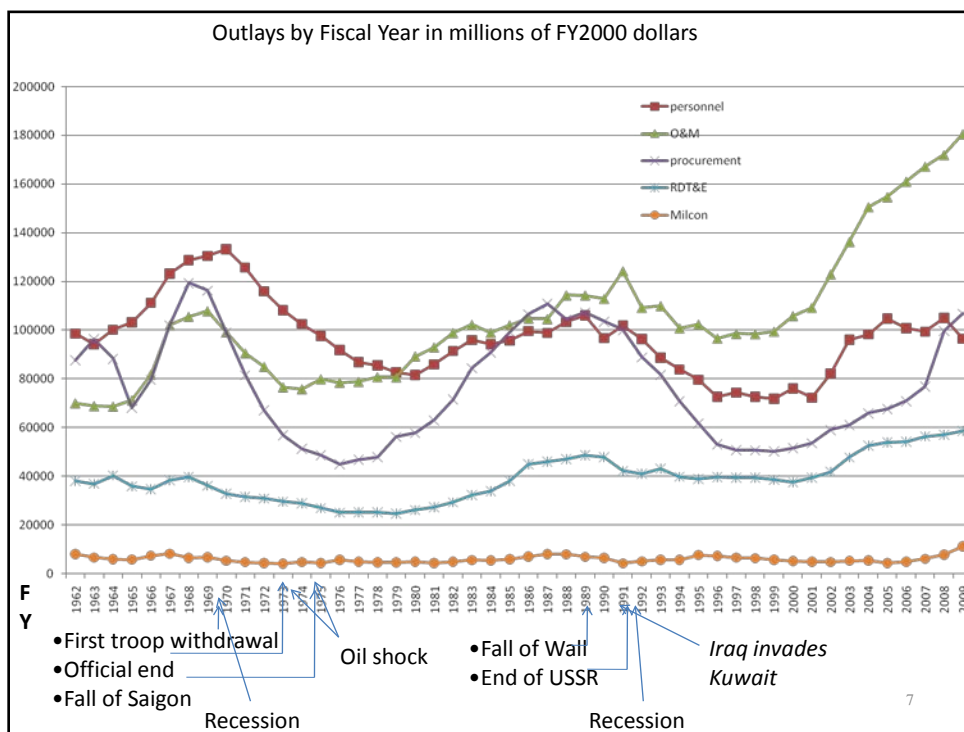


Figure 6a. Outlays by Fiscal Year in Millions of FY2000 Dollars

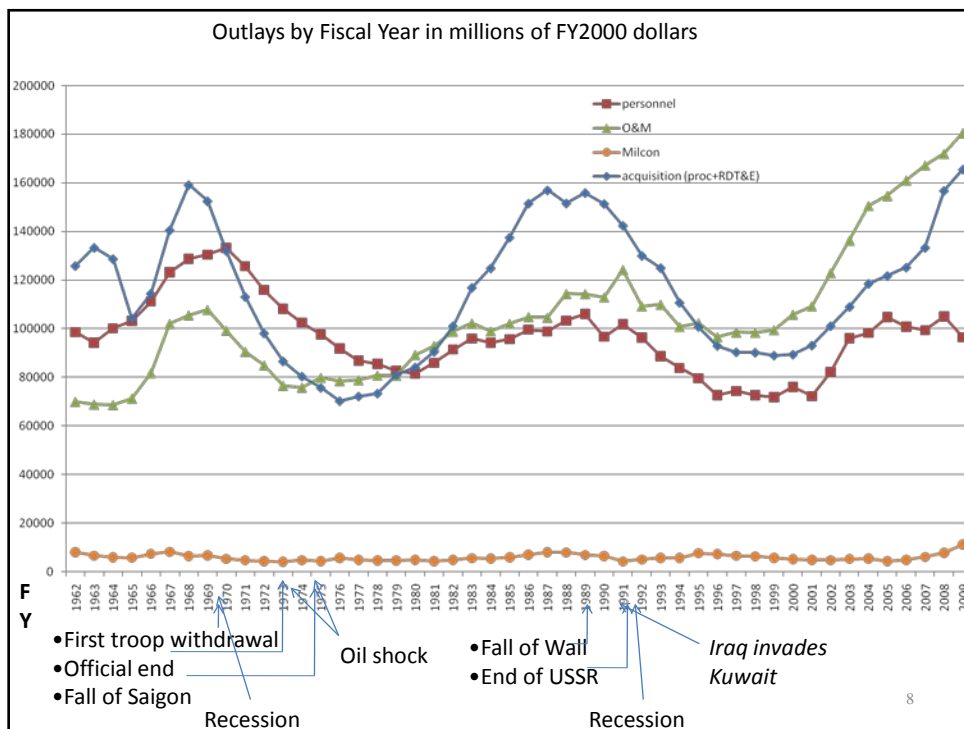


Figure 6b. Outlays by Fiscal Year in Millions of FY2000 Dollars (Procurement & RDT&E Combined)

Figures 6a and 6b break out each year's defense outlays by major categories: procurement, RDT&E, MILPERS, O&M, and MILCON. Figure 6b combines procurement and RDT&E into a single category, labeled "acquisition."

Almost all of 051-DoD Military is accounted for by acquisition, MILPERS, and O&M. All three of these categories follow the same twenty year cyclic pattern as DoD-Military. However, the swings between maximum and adjacent minimum are much more pronounced for acquisition than for either O&M or MILPERS. Acquisition fell by more than half from 1969 to 1979, and by almost half in the ten years following 1989. Moreover, the long-term trend procurement is "flat," i.e. the three peaks are essentially equal.

In contrast, MILPERS has been trending generally downward, while O&M has been trending upward. Of these three major categories, O&M was the smallest at the height of the Vietnam War, and has been the largest since the end of the Cold War. The trends in the relative sizes of these three categories are shown in Figure 7.

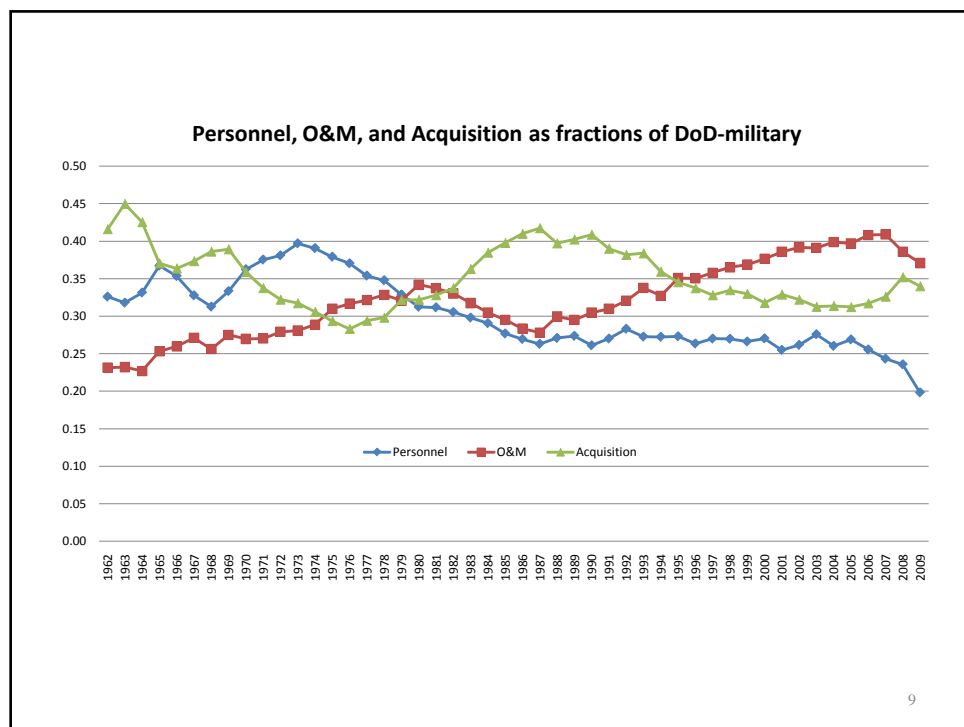


Figure 7. Personnel, O&M, and Acquisition as Fractions of DoD-Military

MILPERS is tied closely to active duty end strength, which has declined by about half since 1968. MILPERS has not declined proportionately because of factors such as the transition to the All Volunteer Force and improvements in pay and benefits. Because of this tie, in any budget year MILPERS is the least discretionary of these three major spending categories. Once the size of the force is determined, and employment conditions (i.e. pay, benefits, etc) are set, the yearly cost is pretty much set.¹⁸ Congress could, of course, insist on reducing the budget for MILPERS, but in order to do this, they would have to either cut end strength or reduce pay and/or benefits. Significantly, one of the main pillars of Obama Administration defense policy has been an increase in end strength, and an increase in pay and benefits for Service members.

O&M is also tied to end strength, but the tie is more complex than it is for MILPERS. O&M expenditures depend on force structure, operational tempo (OPTEMPO), where forces are deployed or stationed, and training goals (e.g. number of hours per year in the field required to maintain proficiency). O&M also depends on costs of fuels and other expendables, and the maintainability of equipment. Another factor is the amount of maintenance done by government personnel and the amount done by contractors.

The seemingly inexorable increase in O&M has been the subject of many studies over the years. In a presentation in 2003, Robert Hale, now (but not then) Undersecretary of Defense Comptroller, referred to O&M as the “budget hog,” and noted the “relentless rise” of O&M per Service member at an average rate of 2.5% per year in constant dollars from FY60-FY03.¹⁹ He also noted that during the decade preceding his talk the rate had been 2.7% per year. This presentation predated the even more rapid rise that has accompanied the war in Iraq, as shown in Figures 6 a. and b. (above). Several major reasons have been advanced for this rise. Two are fairly recent: (1) the increased OPTEMPO associated with the wars in Iraq and Afghanistan;²⁰ and (2) the increased use of contractors to provide maintenance and support services.²¹ In 1997, the Congressional Budget Office (CBO) observed:

¹⁸ It is also dependent on contingencies. Operation Iraqi Freedom (OIF) and subsequent actions in Iraq were supported by calling National Guard and Reserve units to active duty and paying the personnel accordingly.

¹⁹ Honorable Paul F. Hale, “FY04 Defense Request-The Big Picture,” McGraw-Hill Defense Budget Conference, March 27, 2003.

²⁰ Complicated by the call up of National Guard and Reserve forces to active duty.

²¹ “Defense Budget Trends in Operation and Maintenance Costs and Support Services Contracting,” Government Accountability Office (GAO) GAO-07-631, May 2007.

The composition of spending on operation and maintenance has changed. More is now spent on defense wide support that cuts across service boundaries and is only indirectly related to force structure or readiness. Fifteen defense agencies or the Office of the Secretary of Defense (OSD) oversee that defense wide spending. In 1996, the active and reserve forces managed 73 percent of the \$92 billion in total spending on operation and maintenance, and defense agencies or OSD managed or oversaw 27 percent (see Table 5). Fifteen years ago, defense wide spending made up only 14 percent of the total.²²

A decade earlier, CBO examined a hypothesis that O&M spending is largely proportional to the value of defense equipment.²³ We note that this hypothesis is somewhat supported by the data displayed in Figures 6 a. and b., which show peaks in O&M spending following large peaks in acquisition. In the cited presentation, Hale makes brief mention of “diseconomies of scale,” the reasonable observation that as force structure equipment inventories decline, the cost to maintain each remaining item of equipment will generally increase—and therefore so will the cost per service member.

Some factors that drive O&M spending—like training hours required—are amenable to short term policy adjustment, while others—for example the inherent maintainability of major equipment types—can be altered over the longer term, but not year to year. Actual maintenance spending can only be reduced in the short term at the expense of equipment readiness—never a popular choice. Factors like deployments and OPTEMPOs are determined by factors beyond the control of those who put together the O&M budget, and O&M costs are incurred as necessary. Therefore, while there is some ability to adjust the O&M budget year to year, it is largely determined by external factors.

This explains why cyclic swings disproportionately affect acquisition. Of the three major budget categories, acquisition is the most “discretionary.” If externalities—such as public opposition to the Vietnam War, or the desire for a peace dividend as a result of winning the Cold War, or budgetary pressures due to economic conditions—determine the DoD topline through the political process, and if MILPERS and O&M are largely fixed because they depend on factors that are not amenable to short term adjustment, then the only way to absorb the majority of those topline cuts is to reduce the money available for procurement and RDT&E.

²² “Paying for Military Readiness and Upkeep: Trends in Operation and Maintenance Spending,” Congressional Budget Office, September 1997.

²³ Two methods of projecting future needs for defense operations and support funds, CBO staff paper, September 1986.

1. Absorbing Cuts: Accompanying Trends in End Strength, Force Structure, Defense Industrial Base

The two major previous top line reductions have been partially absorbed by reducing end strength and force structure. As figure 8 shows, end strength was reduced dramatically beginning in 1969. However, the number of Army division equivalents and Air Force fighter wing equivalents were not reduced, which led, in part, to the charge of a “hollow army”. During the build-up that began in 1978, all three Services increased force structure, while active duty end strength increased much more modestly.

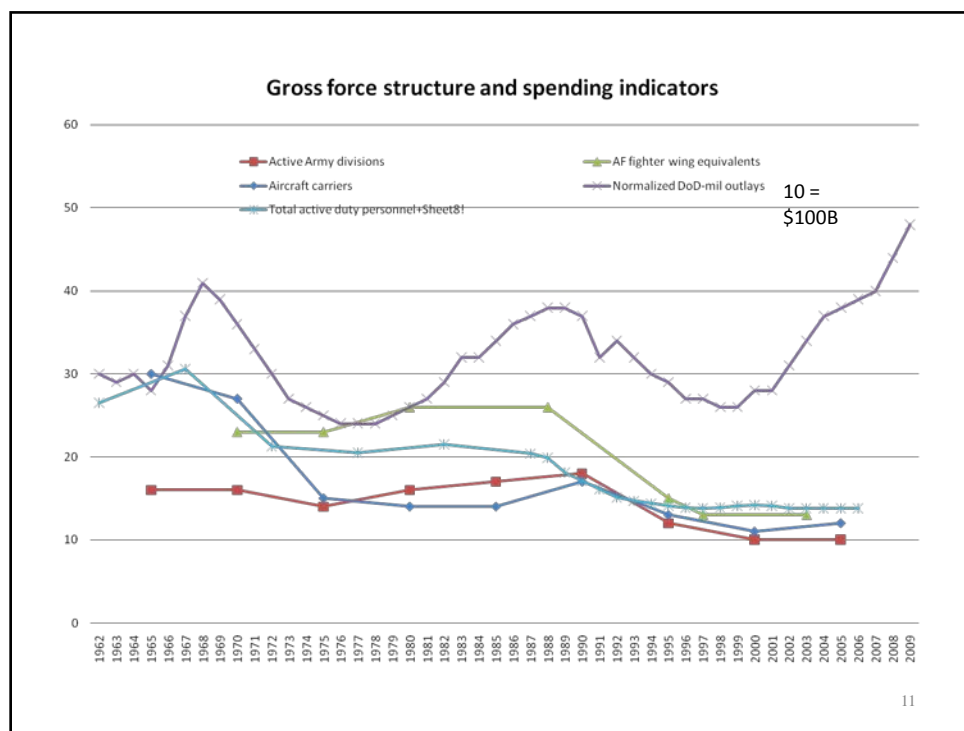


Figure 8. Gross Force Structure & Spending Indicators

The post-Vietnam reduction was consistent with President Nixon’s strategic revision, which sought to avoid major conflicts while engaging the Soviet Union diplomatically and opening relations with China.

As budgets began to fall again at the end of the Cold War, active end strength was further reduced, and force structure was adjusted downward, rationalized to match end strength and new strategic realities. CJCS and SASC efforts to revise strategy recognized that the US was moving

from a highly structured period of bilateral confrontation to one of much greater uncertainty. Therefore the focus of both these efforts was not on grand strategy, but on force structure and composition. Both contained explicit resource strategies.

Subsequently, during the Clinton Administration, DoD was actively involved in encouraging and guiding a similar rationalization of the defense industrial base, as illustrated in Figure 9.

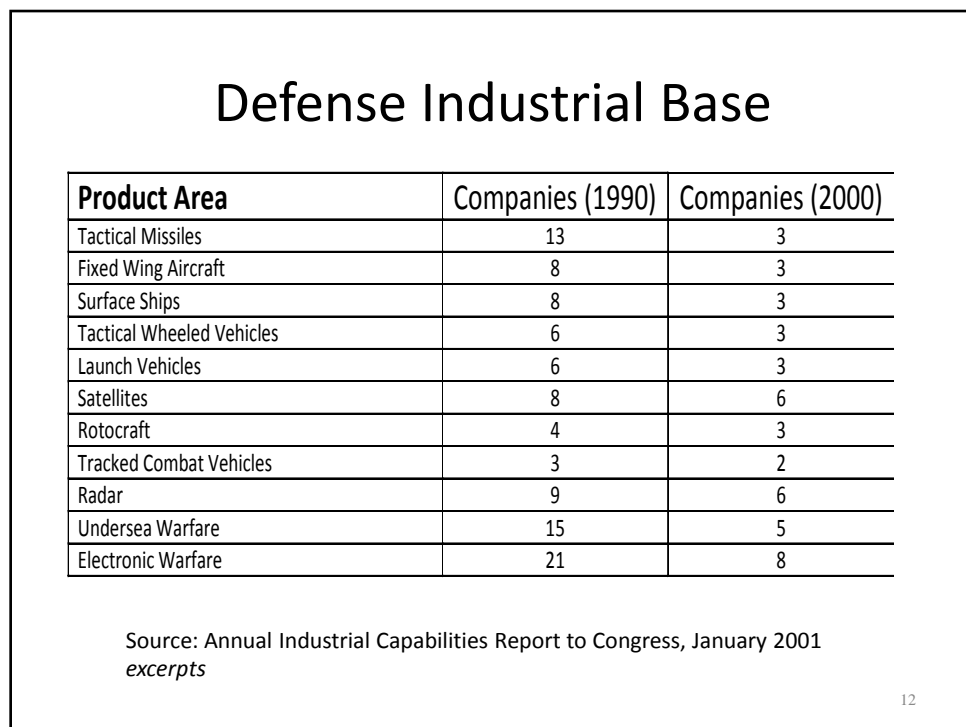


Figure 9. Major Reductions in the Defense Industrial Base

In summary, over the past four decades, budget reductions have been absorbed, in part, by:

1. Reducing active duty end strength
2. Rationalizing force structure in light of end strength reductions
3. Restructuring the defense industrial base

These measures have been taken, and for the most part are not available for the next decade. End strength is not likely to decline. Indeed, the Administration has announced its intention to increase end strength (primarily ground forces) by about 100,000. Some adjustments

in the mix of active and reserve forces may still be possible, and will be explored later in the paper. Similarly, force structure adjustments may also be possible. Some—such as increasing special operations forces at the expense of conventional combat units—may be dictated by the nature of combat as it evolves. But, in general, the rationalization of force structure begun under Gen. Powell’s “base force” has been largely completed. Similarly, as Figure 9 illustrates, there is not a lot more room for industrial restructuring. However, further loss of manufacturing capacity will not necessarily result in useful efficiencies.

Despite all these measures, the total cost of defense per active duty service member has been steadily rising, as illustrated in Figures 10a. and 10b. Figure 10b., taken from Congressional testimony by Stephen Daggett of the Congressional Research Service,²⁴ shows that the long-term (i.e. sixty year) trend is consistent with a steady 2.1% per year increase.

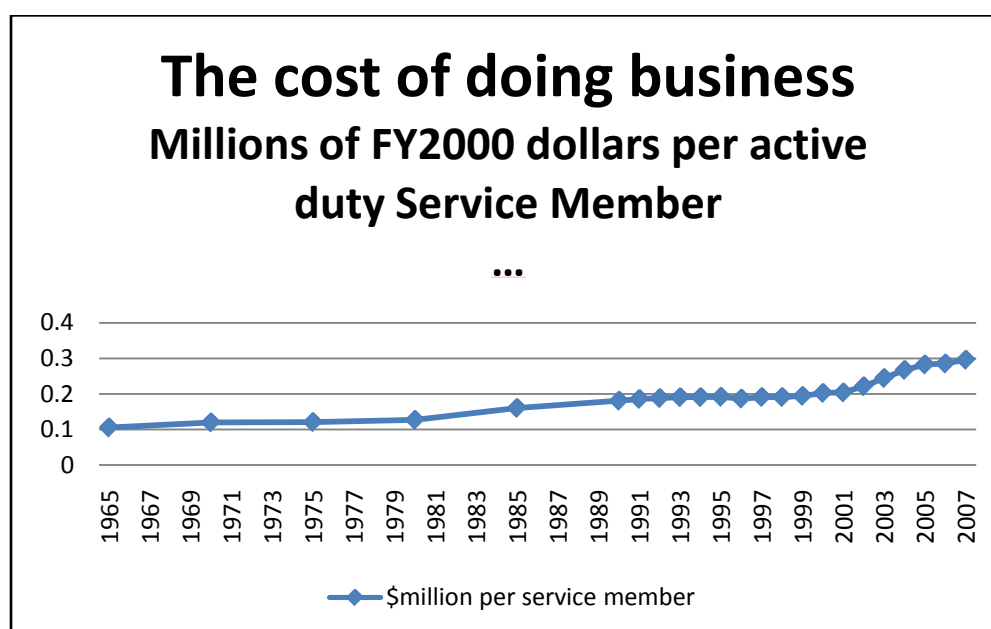


Figure 10a. Cost Per Active Duty Service Member

²⁴ Testimony before the Committee on Budget, US House of Representatives, February 4, 2009.

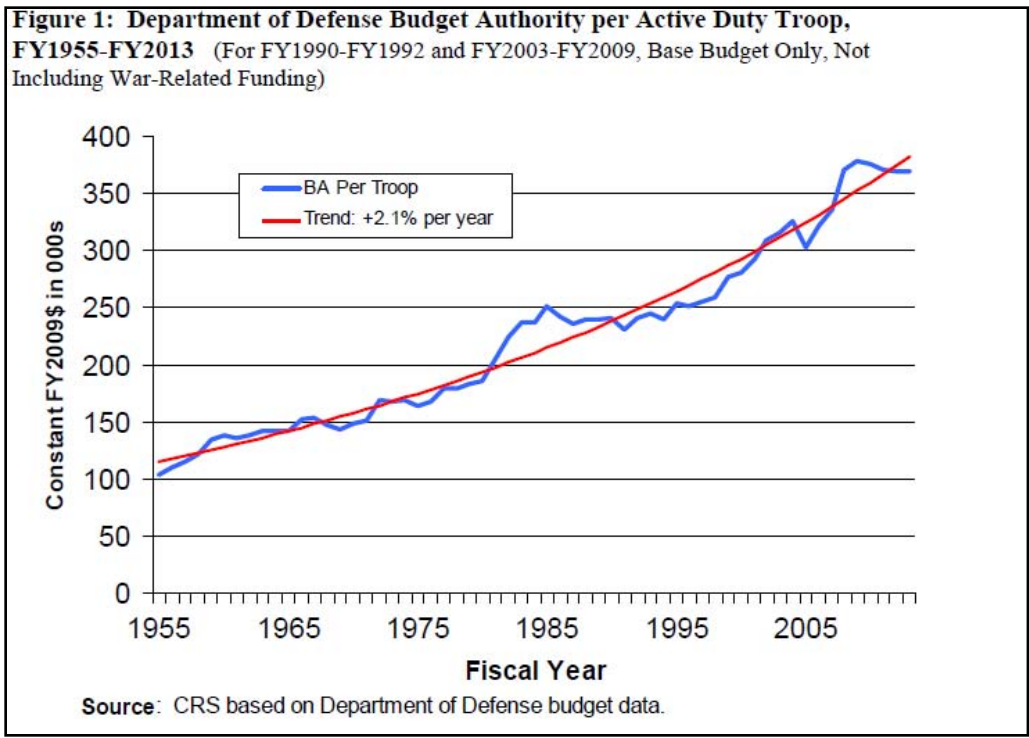


Figure 10b. Department of Defense Budget Authority per Active Duty Troop

D. HISTORICAL LESSONS: SETTING THE CONTEXT FOR 2009-2030

<i>Period Comparisons</i>			
	Post-Vietnam Period 1969-1978	Post Cold War Period 1989-1998	Present 2009-
Defining event	Winding down the Vietnam war	Collapse of WTO, USSR	Winding down war in Iraq; Build-up in Afghanistan
Economic conditions	Recession	Recession	Recession
		Financial Crisis: domestic (S&L)	Financial Crisis: domestic and global
	National Debt (\$FY2008): \$2 trillion (roughly constant 1955-1981)	National Debt (\$FY2008): \$7 trillion (\$5 trillion added 1981-1990)	National Debt (\$FY2008): \$10 trillion (\$3 trillion added since 2001; financial crisis expected to add another ~\$2 trillion)
Public/political mood	Consensus for change, “get out of Vietnam” elects Nixon; expectation of peace dividend	Expectation of peace dividend; “world’s sole remaining superpower”	Consensus for change, including end to Iraq war; concern focussed on economy
Defense Industrial base	Vibrant, competitive; absorbs 55% acquisition decrease 1968-1976	Working on large acquisition spend-up (1978-1989); restructures on 45% decrease (1989-1998)	Fewer companies; health an issue, despite spend-up to 1989 levels. Ability to absorb downturn?
Defense Budget	Declines 40% in decade	Declines 33% in decade	
Absorbing Reductions	War demobilization: O&M declines 30% End strength, MILPERS reduced 25% Procurement declines 65%	Force restructure: O&M declines 10% End strength, MILPERS reduced 25% Procurement declines 50%	

17

Figure 11. Historical Context

1. Post Cold War Strategy Development and Current Parallels

By late 1989 it was becoming clear that fundamental transformation was in the works for the Warsaw Treaty Organization (WTO, or Warsaw Pact), the Soviet Union, the military/cultural divide in Europe, the US-USSR bilateral superpower rivalry, and the Cold War. The communist government fell in Poland, and on November 9 the Berlin Wall came down. Although it would be a year and half until the WTO was officially dissolved on March 31, 1991 and about two years to the dissolution of the USSR (December 26, 1991), strategic change was clearly underway.

At that time (i.e. 1989) OSD/SECDEF took the position that the future was as yet still too unclear to make major changes in US strategy or forces, and retained the expectation that the defense budget would continue to rise as it had for the preceding decade. However, two loci of strategic thought and influence—CJCS General Colin Powell, and SASC chairman Senator Sam Nunn—took a different view, leading to: (1) the development of the “base force” within the Joint Staff and (2) the publication of a comprehensive strategy in the SASC report to accompany the FY91 Senate defense authorization bill.

According to the official history of this period produced by the Office of the Chairman of the Joint Chiefs of Staff:

While these changes in strategic thinking were taking place, the Program and Budget Analysis Division (PBAD) of the Force Structure, Resource, and Assessment Directorate (J-8) had begun to explore the implications of anticipated further budget reductions on force structure, which consumed the largest portion of the defense budget. From autumn 1988 discussions that they had initiated with congressional staff members and Office of Management and Budget (OMB) personnel, PBAD action officers had concluded that the Defense Department could expect an accelerated decline in the growth of its budget amounting to an approximately 25 percent real decline over the next five years. This ran counter to OSD projections that the decline would continue at its current rate, resulting instead in an approximately 10 percent decline over the same period.²⁵

The official history goes on to say:

On 22 March (i.e. 1990) Senator Sam Nunn, Chairman of the Senate Armed Services Committee and one of the strongest congressional supporters of the Defense Department, had delivered a speech in the Senate criticizing the "blanks" in the defense budget. He contended that in submitting its FY 1991 budget request the Department had failed to provide a current assessment of the threat, develop a new military strategy in response to the changed threat, submit plans for a changed force structure to meet its own reduced funding request, or take into account its ongoing review of programs. Senator Nunn announced his intention to offer his own views on these subjects over the next several weeks.²⁶

The history continues:

In another speech on 29 March Senator Nunn reviewed the changes in the conventional threat posed by the Soviet Union and the Warsaw Pact. He pointed out the need to revise military strategy to reflect the reduced threat and then to proceed to determine the forces and funding required to implement the revised strategy.²⁷

Then on 19 and 20 April Senator Nunn presented his own strategic vision and its budgetary implications. On 23 April General Powell delivered a speech intended as a response to Senator Nunn. Addressing the Washington Meeting of the Council on Foreign Relations, he outlined the task facing him. It was his responsibility sensibly to manage the transition to a new era: to reshape the armed forces in light of both the fundamental change in the geostrategic situation and the coming major reduction in resources while at the same time protecting US interests against any possible future threat. He outlined his concept for the four component forces of the Base Force as the means of successfully dealing with the new environment. Expressing determination to fight for the Base Force, he asserted that to go below the level of forces required to carry out US superpower responsibilities would destroy the armed forces.

²⁵ Lorna S. Jaffe, "The Development of the Base Force – 1992," Joint History Office, Office of the Chairman of the Joint Chiefs of Staff, July, 1993, p. 9.

²⁶ Ibid., p. 28.

²⁷ Ibid., p. 29.

The history also says:

Thus, before an audience composed of members of the foreign policy establishment who would be able to influence the course of the administration's debate with Congress over the defense budget, he challenged the contention that the Department was not recasting its thinking in response to the change in the threat. In answer to the Department's critics, he offered his views--still unendorsed by the Secretary--on the strategic approach and the configuration of forces needed to meet the new situation. And he warned that reducing forces too quickly would destroy their ability to respond adequately in the new environment.²⁸

And finally, the history states:

But in their POMs the Services had not accommodated the Chairman's views. He had therefore become increasingly concerned that if the Department did not agree to his approach to reducing forces, Congress would impose reductions below a level he regarded as prudent and at a rate that would destroy the effectiveness of the all-volunteer force.²⁹

The evidence is that General Powell had faced stiff opposition from within the Services, the Pentagon, the Service Chiefs, and the Joint Staff. He therefore worked with a small support staff in a relatively closed environment. He capitalized on the increased power that had recently been given to the Chairman by The Goldwater-Nichols Act.³⁰ Similarly, the Senate work was conducted by a subset of the SASC staff, and generally independent of Powell's efforts. However, as the excerpts quoted above imply, there was a reasonable degree of communication, particularly in the days leading up to the publication of the Senate Report.

Senate Report 101-384 was released on July 20, 1990.³¹ It begins with a discussion of a new defense strategy, which observes that the military threat in Europe from the Warsaw Pact has been virtually eliminated, and tensions in some other regions have also abated. "These changes have fundamentally altered many of the basic assumptions on which our national security policy, our military strategy, and our defense budgets have been based for the last four decades."

²⁸ Ibid., p. 30.

²⁹ Ibid., p. 32.

³⁰ The Goldwater Nichols Department of Defense Reorganization Act of 1986, Public Law 99-433.

³¹ 101st Congress, Second Session S. Report 101-384 to accompany S2884 "National Defense Authorization Act for FY91."

In preparation, SASC had held sixty-four hearings with more than 200 witnesses. In the course of the hearings, SASC asked three questions:

1. How do recent changes in the Soviet Union and Eastern Europe affect the national interest and threats to national security?
2. How should the US military strategy be revised in light of these changes?
3. How should the defense budget be changed in light of the changed threat and new strategy?

The report went on to say that the committee believes that linkages should exist among threat, strategy, and the defense budget. The following presents, in outline form, the main points covered in the SASC report.

a. Threat Assessment

1. Diminished threat of conventional war in Europe. Re-establishing the Soviet threat would require “vast and extended mobilization”
2. Substantial reductions in Soviet naval operations (worldwide)
3. Soviet strategic nuclear modernization continues
4. Reduction in the conventional threat reduced the likelihood of nuclear war as a result of escalation from a conventional conflict
5. A Soviet threat to Iran that would elicit an Iranian request for US help is no longer credible
6. The Middle East remains unstable
7. North Korea remains unstable, and therefore a threat
8. There are potential instabilities in China and other Asian areas (nations)
9. There are continuing issues in Latin America

b. The growing federal debt (interest, debt service) threatens to consume any potential savings in the defense budget.

c. Key US Military Missions:

1. Deter an attack on the US homeland
2. Deter a nuclear attack on the homeland, allies, and deployed forces
3. Deter soviet aggression in Europe (diminished levels)

4. Help defend US allies and friends
5. Forcible entry in medium scale contingencies
6. Keep sea lines of communication (SLOCs) open
7. Counter drug traffic, terrorism, unconventional threats
8. Provide intelligence

d. Essential Elements of the New Military Strategy:

1. Deterrence of nuclear war
 - a. Lower levels than previously
 - b. Deter a direct strike on the US
 - c. Deter a nuclear strike in conjunction with a conventional conflict or attack on US allies
 - d. Limit proliferation of nuclear weapons and missile technology
2. Reinforcement strategy
 - a. Reduce US forces in Europe from 195,000 to 75-100,000
 - b. Foster specialization among the armed forces of the NATO allies
 - c. US reinforcement with deployable forces
 - d. New NATO strategy
 - e. More long-range firepower in Korea
 - f. Flexible response to contingencies, including peacetime presence
 - g. Improve ground force power projection
3. Greater utilization of reserves
 - a. Reduce Navy optempos or number of ships
4. Flexible readiness
5. Resource strategy: “think smarter, not richer.”
 - a. Better acquisition practices
 - b. Reduced ownership costs
 - c. Innovative research & development (R&D)

e. Implementation Strategy

1. Maintain nuclear deterrence at lower levels and with greater stability

- a. More RDT&E, less procurement
 - For some programs, extend RDT&E and defer procurement
- b. Slow some programs, terminate others
- 2. Emphasis on reinforcement
 - a. Lowered statutory ceiling on US forces in Europe
 - b. Procurement programs for lighter, more deployable land forces
 - c. Emphasize mobilization forces
 - d. Retire older, single purpose combat systems
- 3. Utilize reserves more
 - a. Freeze reserve levels, stop DoD plans to cut back reserves; five year plan to strengthen reserves
 - b. Improved equipment for guard and reserves
- 4. Apply flexible readiness
 - a. Reduced budget for training and optempo
- 5. Smarter, not richer
 - a. Fund initiatives to simplify acquisition
 - b. Fly before buy
 - c. Buy fewer of several big ticket items
 - d. Add to RDT&E
 - e. Emphasize product improvements over new starts
 - f. Maintain technological superiority

This Senate effort: (1) recognizes two basic realities—fundamental changes in the world security situation and coming reductions in the defense budget commensurate with the end of the Cold War; (2) looks forward to future US force missions; (3) proposes a military strategy; and (4) links that strategy to a resource strategy. The “base force” developed by General Powell takes a more detailed look at setting end strength and rationalizing force structure. A similar new strategic approach that would drive, or even accommodate, a downturn in total defense spending has yet to appear in 2009.

Secretary Gates' FY2010 budget request justification³² follows this general intellectual pattern that begins from strategic concerns, verities, changes, and uncertainties; leads through objectives and policies for achieving these objectives; describes the global defense posture; and states the FY2010 base budget themes:

- Taking Care of People;
- Reshaping the Force;
- Modernizing for the Future;
- Reforming How We Buy; and
- Supporting Troops in the Field.

These are supported by the elements of a resource strategy, including “reforming how we buy.” The list of major budget priorities includes some that increase spending and some that are designed to save money, as summarized in Figure 12.

³² United States Department of Defense Fiscal Year 2010 Budget Request Summary Justification, May 2009.

Increase spending	Reduce spending
Grow the Army and Marine Corps	BRAC Implementation: decrease by \$1.3 billion as compared to the FY 2009
Halt the Reduction of Navy and Air Force Structure	Stop the Growth of Army Brigade Combat Teams at 45 instead of 48
Fully Fund Military Healthcare	Stop F-22 Production
Sustain Family Support	Stop C-17 Production
Military Pay Raise	Aircraft Retirement The Air Force proposes retiring roughly 250 aircraft
Military Basic Allowances for Housing and Subsistence	Focus on insourcing
Civilian Pay Raise	Reduce reliance on time and materials contracts
Increase Intelligence, Surveillance, and Reconnaissance (ISR) Capabilities	Terminate and restructure programs <i>Presidential Helicopter:</i> <i>Transformational Satellite</i> <i>Future Combat System (FCS)</i> <i>Airborne Laser (ABL)</i> <i>Multi-kill Vehicle (MKV)</i> <i>Combat Search and Rescue Helicopter (CSAR-X)</i>
Grow Special Operations Capabilities	
Buy Littoral Combat Ship (LCS)	
Charter additional Joint High Speed Vessels (JHSV)	
MODERNIZING FOR THE FUTURE: JSF, F/A18, destroyers, Virginia class submarines, T-AKE, JHSV	
Reinvigorate the acquisition workforce addition of 4,080 acquisition professionals	
This budget also requests \$130.0 billion to support Operation Iraqi Freedom and Operation Enduring Freedom. The budget request supports the deployment plans for Iraq and Afghanistan approved by the President. This funding will provide for: <ul style="list-style-type: none"><i>Military Personnel</i> (\$13.6 billion): Supports an average deployed troop strength of 100,000 in Iraq and 68,000 in Afghanistan<i>Operation and Maintenance</i> (\$89.1 billion): Provides funding for incremental costs for military operations to include subsistence and logistics, transportation, body armor, medical services and communications.<i>Procurement</i> (\$21.4 billion): Supports the purchase of new equipment to replace equipment lost, destroyed or worn beyond economic repair, the purchase of an additional 1,080 Mine Resistant Ambush Protected All terrain Vehicles (MRAP-ATV), and continued funding for Joint Improvised Explosive Device Defeat (JIEDDO) needs.	

Figure 12. Major Budget Priorities

These priorities frame the DoD-Military budget for FY2010 and beyond. There are several basic themes:

- Increase active duty end strength, primarily in the Army and Marine Corps
- Halt reduction in force structure: explicitly in the Air Force and Navy, and implicitly in the Army and Marine Corps (see preceding bullet)
- Increase pay and benefits for Service personnel
- Reduce forces committed to Iraq, and increase in forces committed to Afghanistan
- Seek savings in acquisition and O&M through reforming contracting and reducing reliance on contracting for certain purposes
- Generate savings in acquisition through selective program terminations, and apply (some of) those savings to other acquisition programs.

These actions affect the major defense budget categories as follows:

1. Almost certainly increases MILPERS (although there may be some offsetting reductions associated with net force reductions in the middle east, particularly if that means fewer national guard and reserve on active duty)
2. O&M.
 - a. Downward trend from net reduction of forces in middle eastern war zones
 - b. Upward pressure associated with training and readiness driven by increasing end strength
 - c. Possible savings from contracting reforms
3. Acquisition: some reductions, some increases

This is, in a sense, the perspective from the Pentagon. It is based on building the budget up from its constituent parts. As discussed earlier, defense appropriations are also driven by other factors that tend to operate at the “topline.”

The Administration's published defense budget summary is reproduced in Figure 13.³³

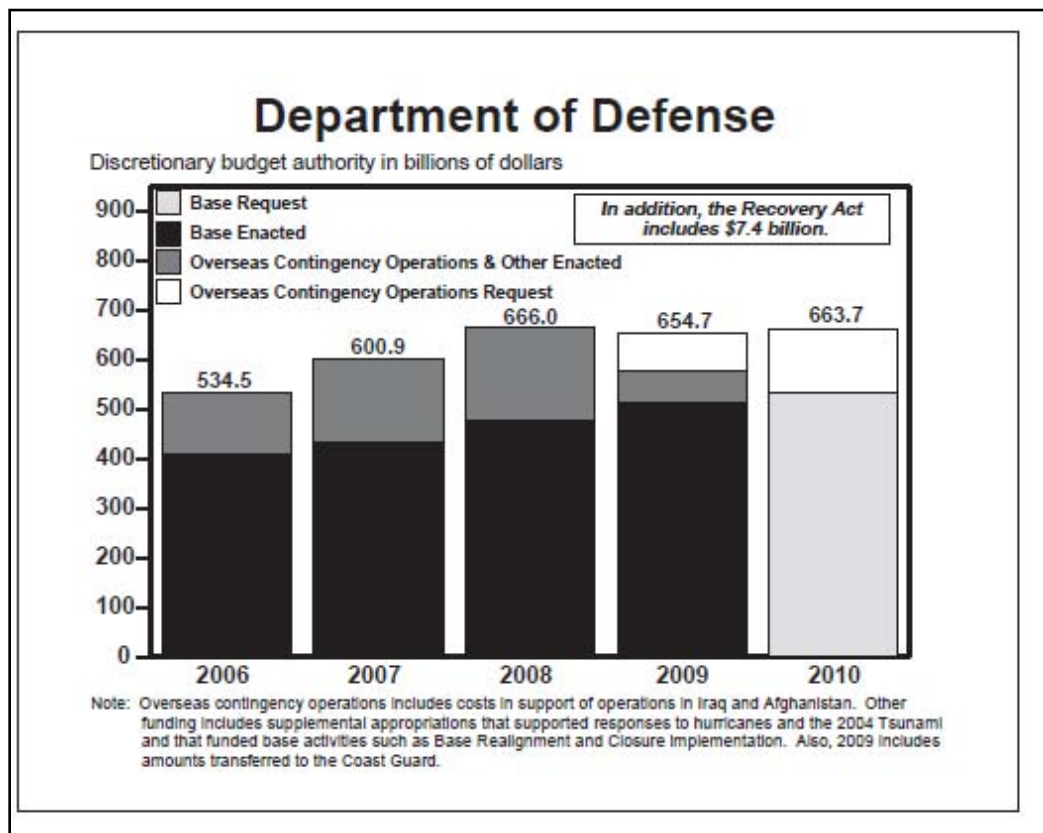


Figure 13. President's Budget FY2010

The totals shown are in then-year dollars. Conversion to constant dollars shows a 2% drop from 2008 to 2009, with 2010 virtually identical to 2009. While this is consistent with the beginnings of the budgetary downturns that began twenty years ago and forty years ago, it is also consistent with a budget that “flat lines” beginning in 2008, and not inconsistent with a budget increases. However, if history is any guide, we are unlikely to be entering a period of substantial defense budget increases. Moreover, the gross lesson of history is that conditions have changed to the degree that repetitions of the downturns that occurred 1969-1978 and 1989-1998 are similarly unrealistic, as illustrated in Figure 14, which displays a crude extension of earlier

³³ “A New Era of Responsibility, Renewing America’s Promise,” Office of Management and Budget; Accessed on December 4, 2009: www.budget.gov.

cycles. The topline “bottom” in 2018 was obtained by extending a straight line through the two previous minima. Despite increases in end strength and pay and benefits, MILPERS is extended as a straight line from 2009 levels. The historical O&M peaks were extrapolated to another peak in 2028, but there is an assumed respite from increases for the period 2009-2018. O&M, although generally increasing over the past forty years, showed a decline 1969-1975, and a much more modest decline twenty years later. However, these were both periods of extensive redeployment, reductions in end strength and demobilization, which the coming decade is not likely to be.

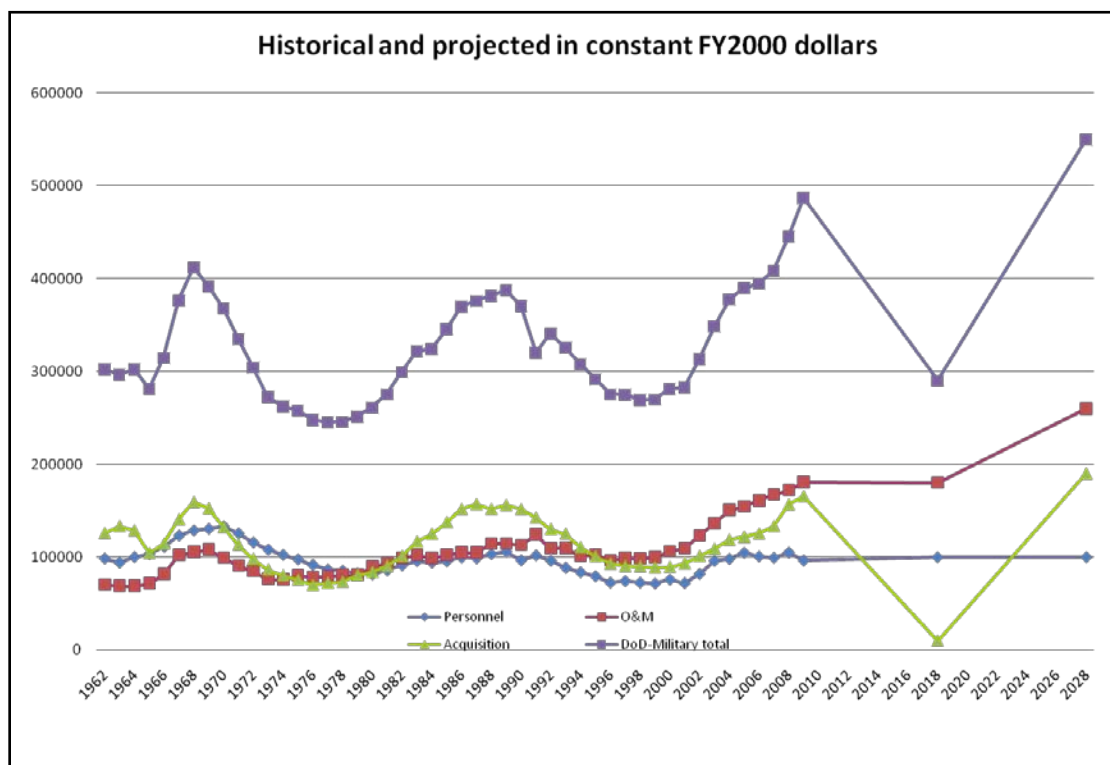


Figure 14. Crude Extrapolation of Historical Budget Cycles through 2029

The message of Figure 14 is that, even with relatively optimistic assumptions about MILPERS and O&M, a repeat of earlier budget cycles would result in the acquisition budget going to nearly zero. This is clearly unrealistic, and will not be considered further.

III. PROJECTING THE DEFENSE BUDGET 2010-2030

“Prediction is very difficult, especially if it’s about the future.”

-Neils Bohr

A. CONTEXT: ADMINISTRATION INITIATIVES, BUDGET, PROJECTIONS

In its 2010 budget, the Obama Administration projects a defense budget that does not begin a decade-long decline that follows historical precedent. Figure 15 shows 051, department of defense-military budget authority in billions of dollars.³⁴ The figures in parentheses for 2008, 2009, and 2010 are the base budget, excluding the supplemental overseas contingency operations (OCO). The estimates for 2011-2014 are for the base budget only. (Note that the totals (in then year dollars) for 2008-2010 are not identical to those shown in Figure 13, which are from a different part of the President’s budget documentation.)

	2008	2009	2010	2011	2012	2013	2014
	Actual	Estimates					
Then year dollars	674.7 (480)	663.7 (513)	667.7 (584)	596	605.1	615.7	629.3
Defense deflator (2000 base year)	1.3355	1.3484	1.3650	1.3838	1.4068	1.4322	1.4579
Inflation relative to 2009	0.99	1.00	1.01	1.03	1.04	1.06	1.08
2009 dollars	681.5 (484.8)	663.7 (513)	661. (578.)	578	581.8	580.8	582.6

Figure 15. Projections from President’s Budget FY2010

The base budget rises in 2010, and then is essentially flat for five years. The actual budget profile will depend on how much is added through supplementals.

The Congressional budget office has provided a more detailed projection. This was prepared in January 2009. It is based on the Bush Administration FY2009 budget and does not

³⁴ “Historical Tables,” *President’s Budget 2010*, Office of Management and Budget.

take into account specific changes made by the Obama Administration. Nevertheless, it provides some important insights for projecting MILPERS, O&M, and some aspects of acquisition.³⁵

The “topline” projections are shown in Figure 16, (Figure 1 of the CBO report, reproduced below).

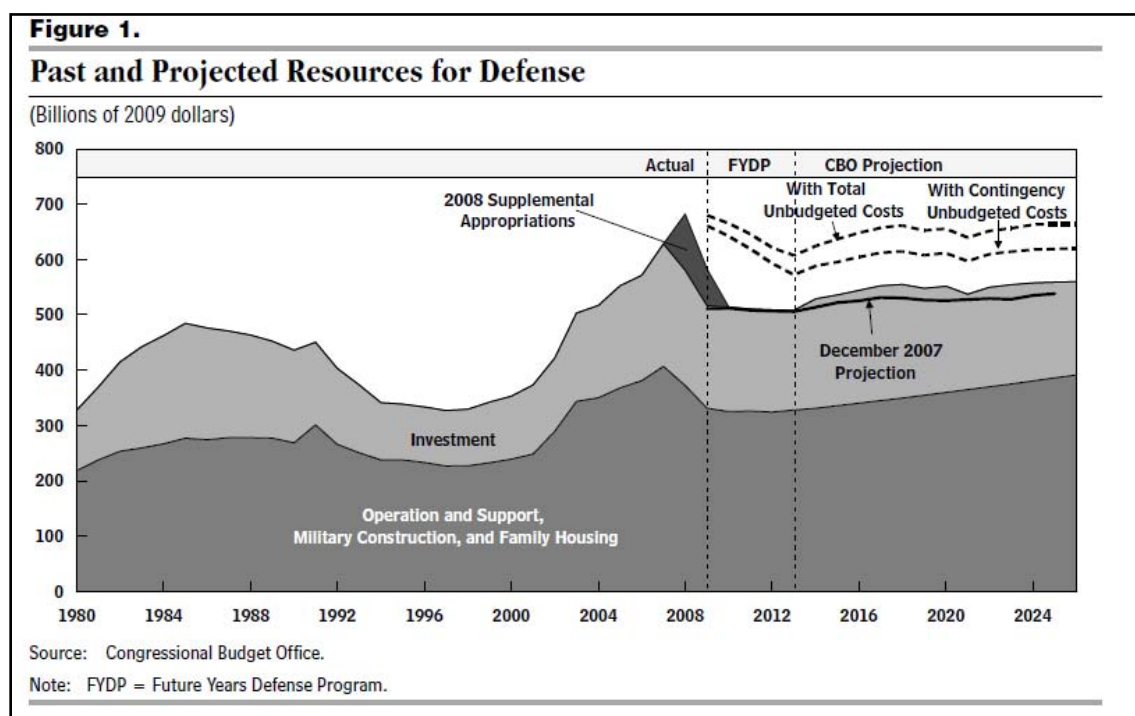


Figure 16: Congressional Budget Office Defense Budget Projection

Two significant factors are not reflected in this figure. The first is the current FY2010 budget and the Obama Administration policies that underpin it. The second is the absence of wartime supplemental budgets (other than the 2008 supplementals as explicitly shown). The Bush administration budgets did not include these supplementals, but the results of those additional appropriations are included in the “actual” as indicated on the figure. The Obama administration refers to such supplementals as OCO, or overseas contingency operation funding, and has included OCO in its FY2010 budget.

In an effort to add back OCO and other costs that CBO assesses as having been left out of the Future Years Defense Program (FYDP), CBO has added back a category called “unbudgeted

³⁵ “Long Term Implications of the Fiscal Year 2009 Future Years Defense Program,” Congressional Budget Office Publication No. 3184, January 2009.

costs”, shown with a dashed line in the figure. The historical part of this figure does not precisely track Figure 16, above. CBO displays budget authority, while Figure 16 shows outlays, which generally lag BA. Nevertheless, the overall trends are the same. Both show a ten year period of declining budgets followed by a ten year period of growth. Both show a substantially higher peak now than twenty years ago (the preceding peak).

The CBO projects a modest decline (~10%) over about four years, followed by a return to current levels over a similar period, and a constant budget after that. This is in stark contrast to the historical cycle. CBO notes, however, that these projections are highly dependent on the level of OCO, which is primarily involvement in Iraq (now winding down), and Afghanistan (now ramping up). A simple accounting of troop levels in these two theaters would indicate a basis for some savings, as fewer additional forces are currently planned to go to Afghanistan than are scheduled to leave Iraq. However, these numbers remain uncertain.³⁶

CBO provides two other important projections. They project that MILPERS will increase—in more or less a straight line—from about \$130 billion in 2010 to \$162 billion in 2026 (both in constant 2009 dollars). The President’s FY2010 budget sets MILPERS at \$136 billion for the base budget and \$149.6 billion overall (including OCO). The difference between the CBO projection and the President’s budget is largely accounted for by the announced increases in active duty end strength and benefits. The salient point is that, whatever the FY2010 MILPERS budget turns out to be, CBO predicts that it will increase steadily by about 25% over sixteen years.

This projection is based, in part, on data illustrated in Figure 17, which is taken from Congressional testimony by Stephen Daggett of the Congressional Research Service (CRS).³⁷ (In this figure, ECI refers to the (civilian) employment cost index, to which military pay raises are supposed to be indexed.) Daggett points out that the sharp rise over the past decade has been partially driven by very large increases in housing allowances and retirement accruals.

³⁶ See, for example: (1) Peter Baker and Elizabeth Bumiller, “Obama Advisers are split on Size of Afghan Force,” *New York Times*, September 4, 2009; (2) Ann Scott Tyson, “Gates may be Open to Troop Increase,” *The Washington Post*, September 4, 2009.

³⁷ Stephen Daggett, Congressional Research Service, Testimony before House Budget Committee, February 4, 2009.

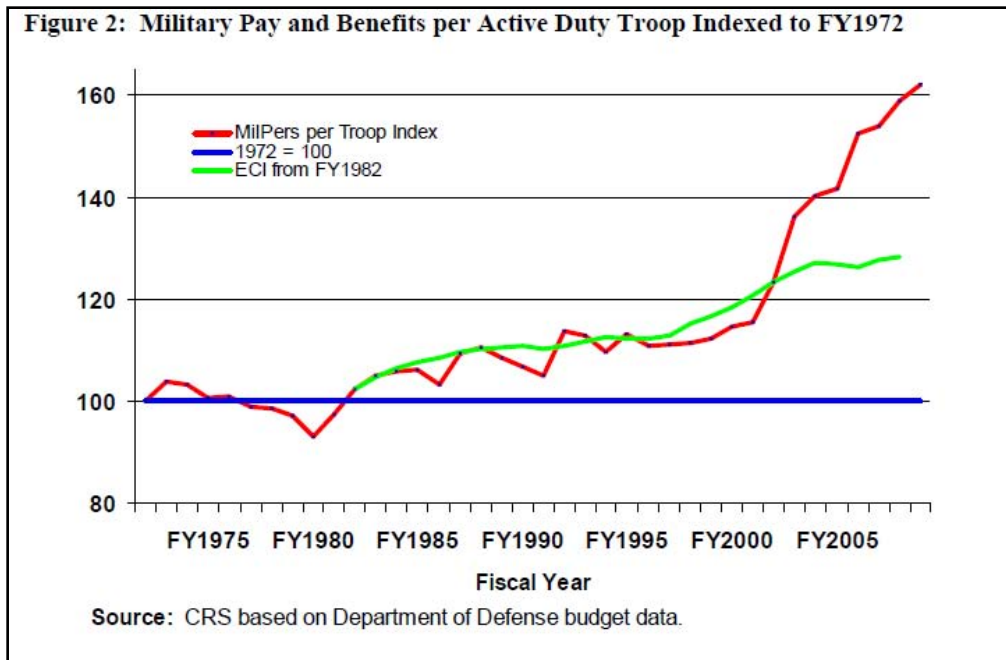


Figure 17. Military Pay and Benefits per Active Duty Troop Indexed to FY1972

The second important projection is O&M, which CBO also projects to increase steadily. This is illustrated by Figure 18, which is Figure 5 from the CBO report.

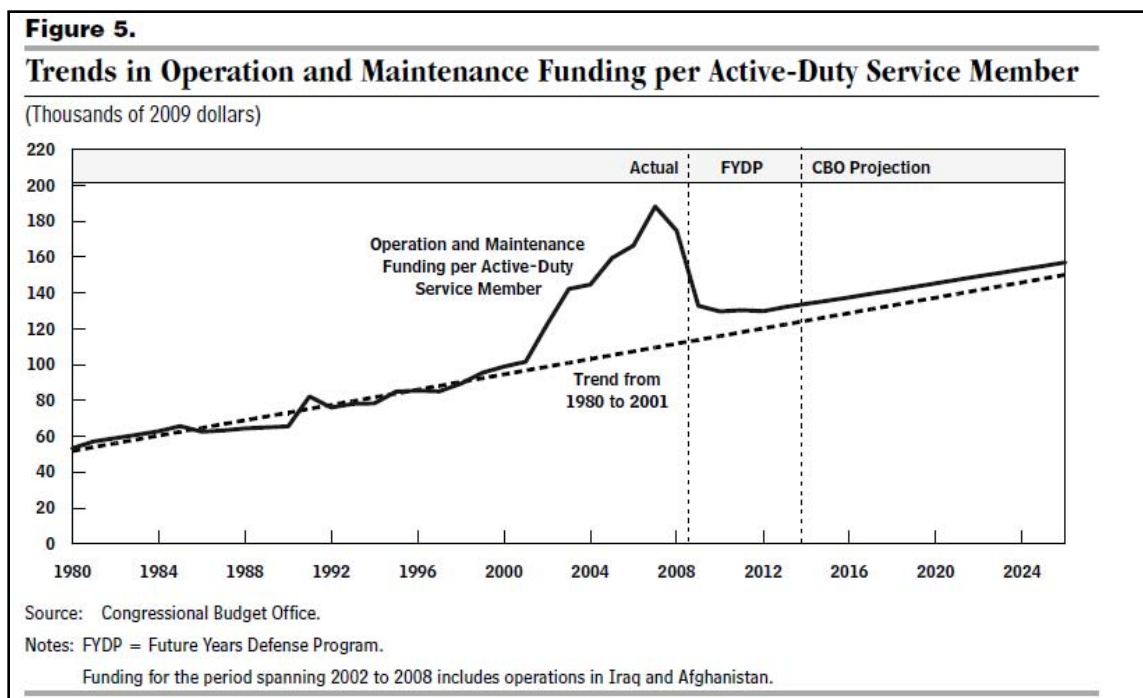


Figure 18. Trends in Operation and Maintenance Funding per Active Duty Service Member

The message of Figure 18 is that: (1) in the absence of major conflict, O&M per active duty service member has been increasing at a rate such that it doubles (in constant dollars) in about thirty years; and (2) involvement in Iraq and Afghanistan has caused O&M per active duty service member to double in about six years. Several explanations for this trend were discussed earlier (see pp. 18-19).

Similar results were reported by CRS,³⁸ as shown in Figure 19. The CRS data goes farther back in history, and CRS does not project as far into the future as CBO does. Other than that, the two provide a consistent picture. The CRS testimony notes:

A second cost driver is the continued, steady growth of operation and maintenance budgets. If you put together a spread sheet that shows defense funding back to end of the Korean war, exclude recent war costs, divide annual O&M budgets by the number of active duty troops, and adjust for inflation, you will come up with a trend line that grows by somewhere between 2.5% and 3.0% above inflation every year – year after year after year (see Figure 4).

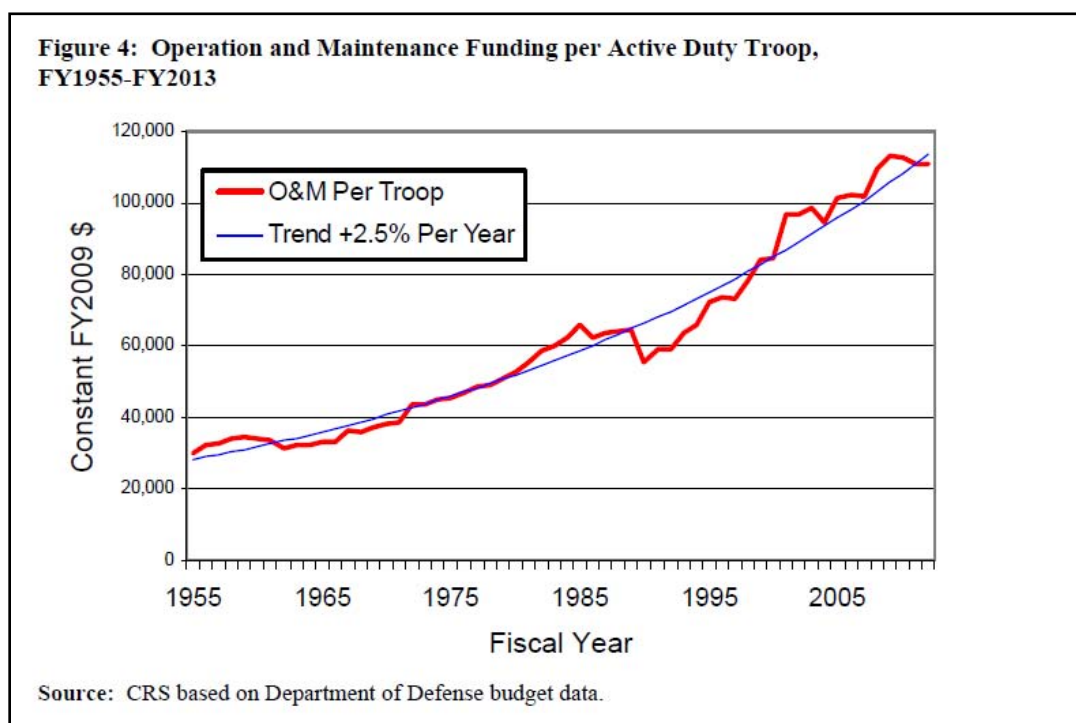


Figure 19. Operation and Maintenance Funding per Active Duty Troop, FY1955-FY2013

³⁸ Ibid.

Daggett provides a good overview of the long-term growth of O&M, and the inherent implications for controlling it in the future.

It is a bit difficult to analyze why O&M grows at such a relentless, steady pace, because the O&M budget covers all kinds of very different activities – advertising and recruiting; basic and advanced individual and unit training; professional military education; fuel costs; transportation; medical care for service members, their dependents, and some retirees; utility bills; facility maintenance and repair; warehouse and supply operations; purchases of spare and repair parts; day-to-day operation of weapons and equipment; overhauls, including sometimes extensive upgrades, of weapons and equipment; defense think tank studies of strategy and of trends in O&M; pay and financial management; and management of much of the Defense Department.

There are, however, a few pieces of the picture that collectively explain in very large part why O&M costs keep climbing.

One is that a very large share of the O&M budget goes to pay civilian Department of Defense personnel. In the FY2009 base budget, civilian pay in the O&M accounts was projected to total \$53 billion, about 30% of total O&M funding. While federal civilian pay and benefits have not grown as rapidly as those of uniformed personnel, they have outpaced the growth of inflation – as in most skilled occupations, compensation of federal civilian workers has grown in real terms over time.

Second, the O&M budget includes costs of operating and maintaining major weapon systems. Those costs also appear to have increased faster than base inflation, though the reasons are complicated. Military service officials, particularly in the Air Force, have long argued that aging equipment becomes progressively more and more expensive to operate and maintain. CBO found some time ago that this was not a major factor in O&M. On the other hand, though it may not add up in itself to a huge amount of money, it may be one of a large number of individually minor factors that should be considered in concert to explain the larger trend.

Most observers also agree that new weapons are typically more expensive to operate and maintain than earlier generations of similar systems. Why this should be the case is very hard to explain. It is certainly at odds with trends in the civilian sector, in which reliability and maintainability of all kinds of goods have improved dramatically – consider automobiles, household appliances, and, especially, consumer electronics (leaving aside battery replacement). It appears, however, that while military developers promise lower operating costs, in the end they choose to pursue advances in performance instead.

Third, the O&M budget includes most of the annual funding for providing medical care to service members, their dependents, and many retirees (it does not include \$5-6 billion a year in military personnel accounts for pay and benefits of uniformed health care providers). DOD officials see growing medical costs, which have climbed much faster than overall inflation, as a critical long-term budget issue.

Fourth, and finally, the O&M budget finances operation and repair of military facilities. As the quality of life in the civilian sector improves, defense facilities also, in general, are expected to keep up, which, in turn, also may drive up costs in real terms. This list is by no means exhaustive, but may help to understand some of the principal factors behind the continued growth of O&M costs. The corollary question, then, is whether this is a problem. Some may say no – that this is the cost of doing business and as long as growth isn't excessive, it is simply a fact of life for which budgets need to be

adjusted. On the other hand, continued steady growth in the day-to-day cost of doing business appears to be at odds with experience in many parts of the private sector, in which improved productivity is the norm. The trend in defense O&M prices appears to be more similar to the trend in health care costs – which is universally seen to be a problem - than to the trend in other economic activities.³⁹

Similar data was compiled by the Aerospace Industries Association (AIA).⁴⁰

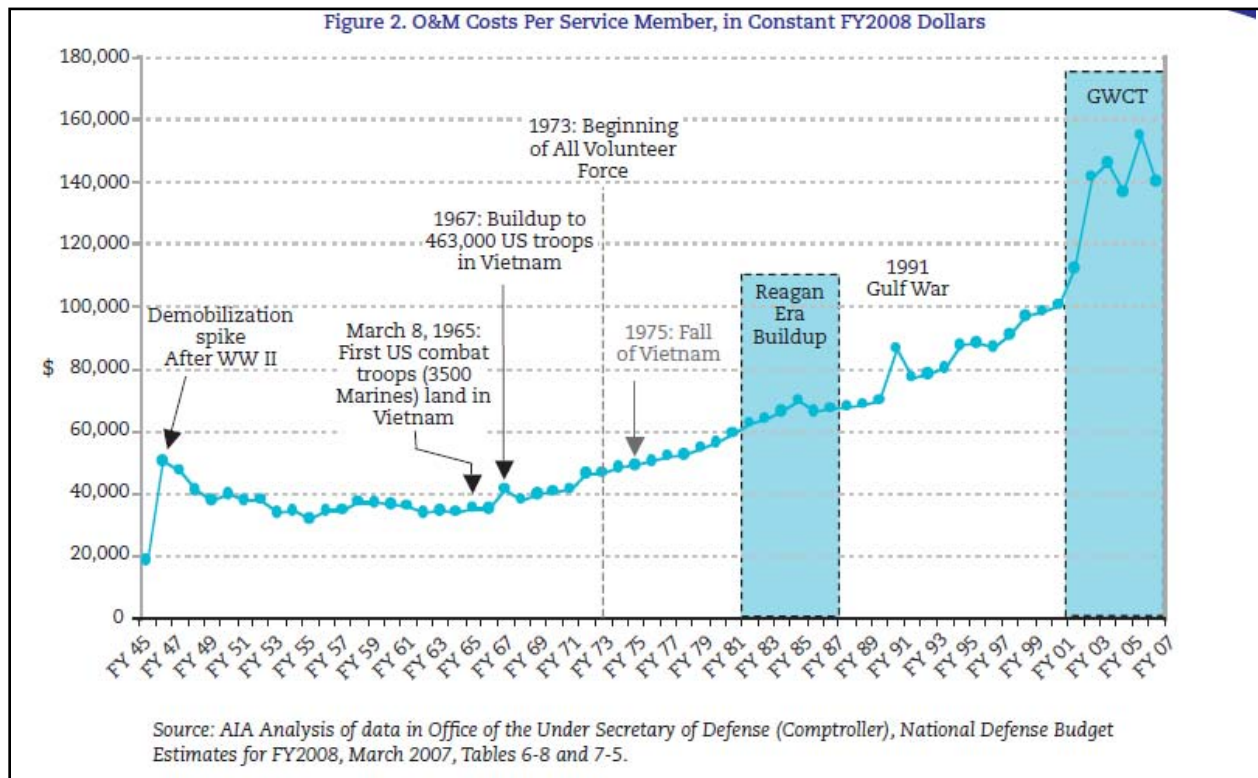


Figure 20. O&M Costs Per Service Member in Constant FY2008 Dollars

The AIA report notes that “inexorable growth in operations and maintenance costs,” and “rising personnel expenditures, including future costs of recent increases in active duty end strength” combine to compete with “simultaneous needs for reset and recapitalization” for budgetary resources.

While there are clearly great uncertainties in making predictions, we can observe some basic features:

³⁹ Ibid.

⁴⁰ *US Defense Modernization, Readiness Now and for the Future*, Aerospace Industries Association, April 2008.

1. Active duty end strength will continue its modest increase in the near term, and then level off at ~6% above 2008 levels. Using CBO's projections of pay and benefits, MILPERS will rise constantly (in constant dollars) for the period of interest.
2. In the absence of significant changes in operations and maintenance, the cost of O&M per active duty service member will continue to increase steadily. Therefore, the cost of O&M will rise at about the same rate for the period of interest.
3. Ending US involvement in Afghanistan will produce savings (assuming it is not replaced by another conflict), but that appears to be at least several years in the future. Commitment to Afghanistan significantly beyond current force levels cannot be ruled out.

The implications of these trends are that, even if historical cycles do not repeat and budgets remain constant in spending power (i.e. as measured in constant dollars), there will be significant downward pressure on acquisition budgets.

A decade of conflict has produced another source of pressure on the acquisition budget: the need to replace equipment on an accelerated schedule because: (1) it has been destroyed; (2) it has been operated at an accelerated usage rate; or (3) combat experience has proven its performance characteristics to be inadequate.

B. BUDGET PROJECTIONS

Applying the rates of increase in MILPERS and O&M per active duty Service member as derived by CBO and CRS and increases in active duty end strength as announced by the Administration, MILPERS and O&M will grow as shown in Figure 21. Figure 21 shows that—beginning from the President's FY2010 budget—if the topline defense budget increases at a steady rate of 1% per year, the acquisition budget will decline by roughly half over twenty years. Figure 22 shows the results of a flat topline under the same assumptions for MILPERS and O&M.

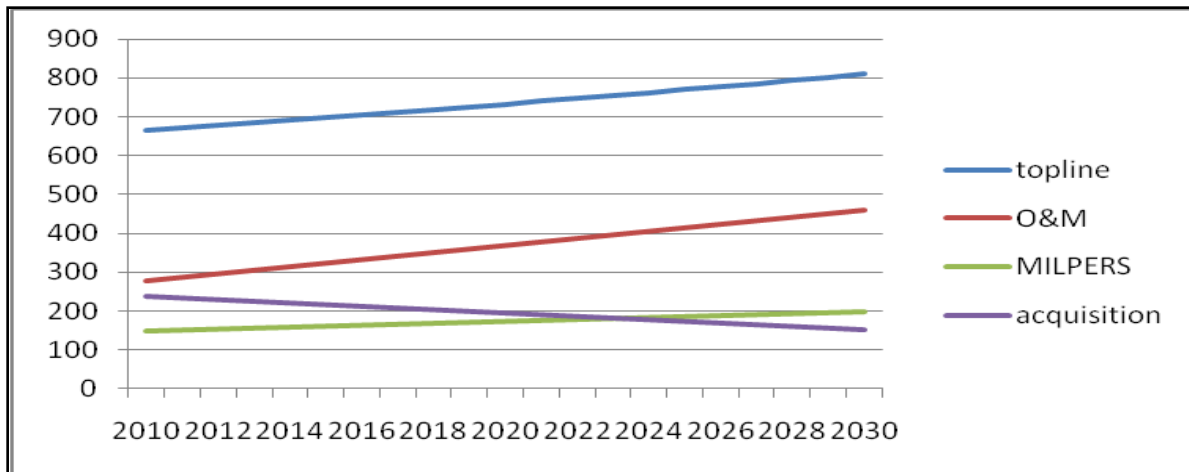


Figure 21. Modest Real Growth. 1% Per Year Real Growth, BA in Constant Billions of FY2009 Dollars

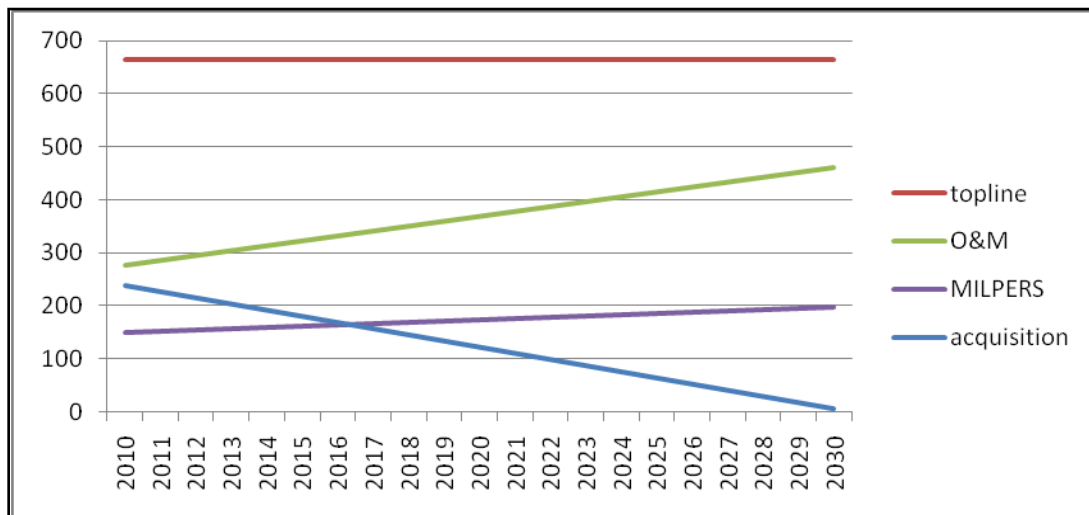


Figure 22. Zero Real Growth, BA in Constant Billions of FY2009 Dollars

The implications of these projections are clear. If trends in MILPERS and O&M follow CBO projections, defense budgets that are flat over the next twenty years or increase steadily at a real growth rate of 1% or less, lead to serious declines in acquisition budgets. Figure 23 compares the resultant acquisition budgets for six different “topline” assumptions. Five are steady change, ranging from 2% per year increase to 2% per year decrease. The sixth assumes a topline budget profile that is the same as that which followed the end of the Cold War. All assume the President’s FY2010 budget is enacted. All include the same assumptions regarding growth in O&M and MILPERS derived from CBO as described above.

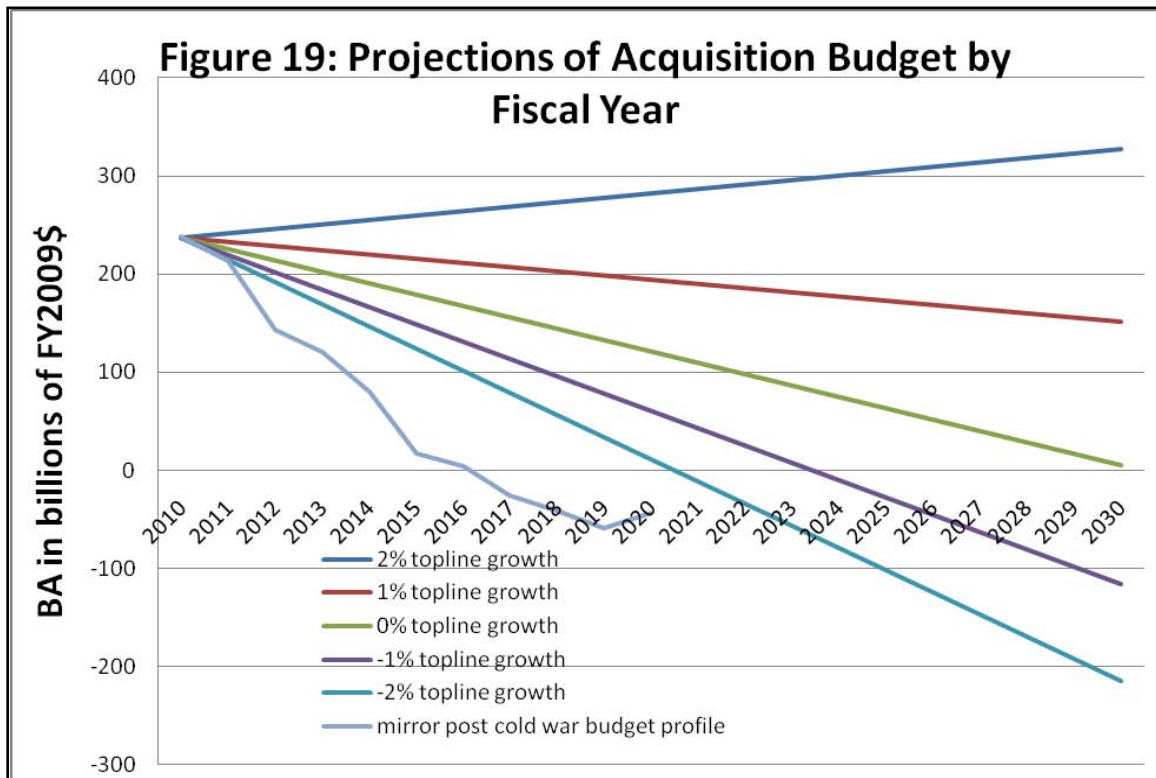


Figure 23. Projections of Acquisition Budget as a Function of Assumptions Regarding Overall (topline) Defense Budget

Following historic budget trends—in the absence of major mitigation actions—seems clearly untenable. Note that if the projected trends in O&M and MILPERS materialize, real growth of about one and one half percent will be required if the acquisition budget is not to decline.

Another way to combine these numbers is illustrated in Figure 24. Recreating the acquisition budget profile of the post Vietnam and post Cold War periods would require a defense budget topline that is roughly constant (in constant dollars) from 2010 to 2020, and then rises dramatically (3.6% per year) from 2020-2030.

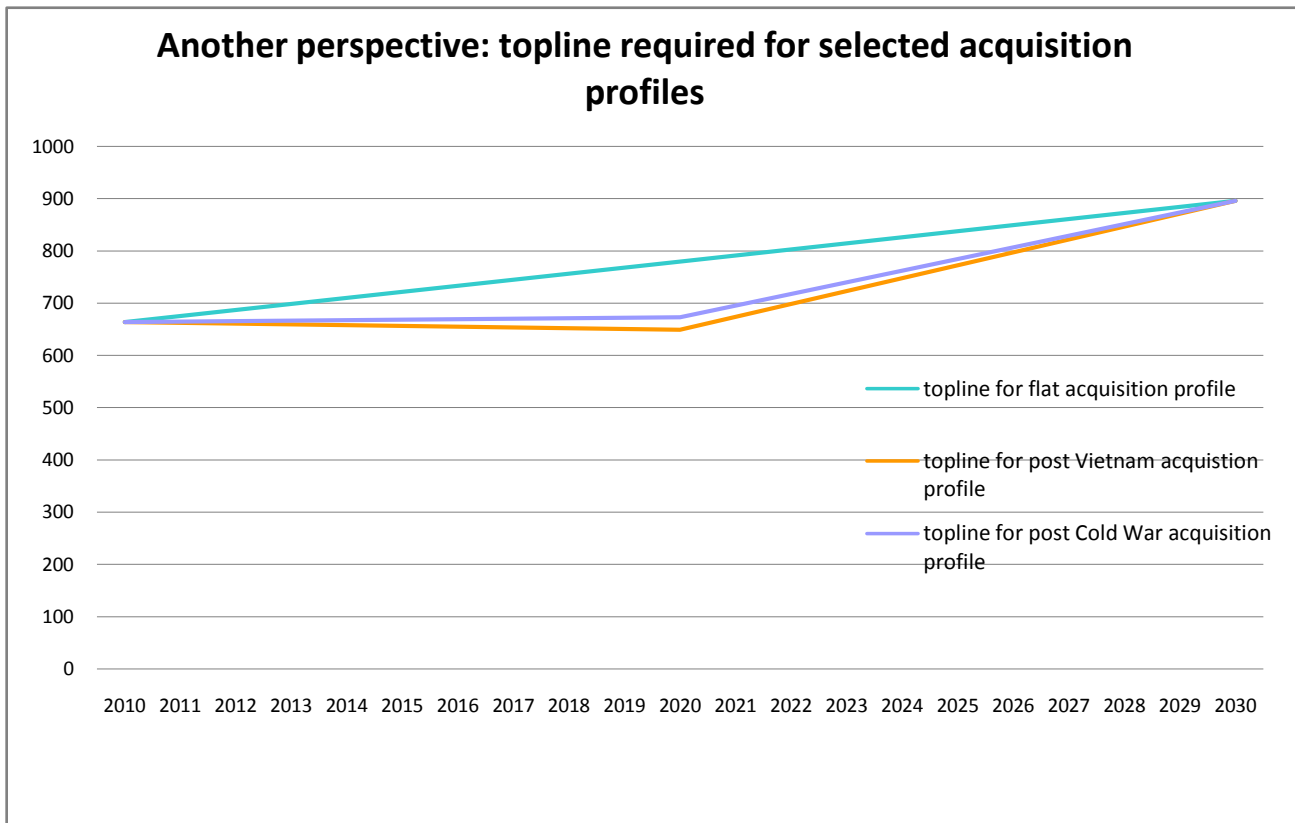


Figure 24. Another perspective: Topline Required to Reproduce Historical Acquisition Profiles

The profile in Figure 24 has the virtue of being roughly consistent with the Administration’s projections for the next five years and the CBO projection for the coming decade, thus giving it some credibility. Were this to come to pass, DoD would have to contend with an acquisition budget that loses roughly half of its buying power over the coming decade, and, as in the past, regains it over the decade after that.

At this point, it is worth reminding ourselves of what we know reasonably well, and what is highly uncertain.

MILPERS for active duty service members appears highly predictable. It depends on end strength, pay and benefits. The Administration has stated its goal for active duty end strength, and we are well on our way to reaching that. Pay and benefits per service member are predictable within narrow bounds. But MILPERS also includes pay for National Guard and Reserve who are called to active duty. How many will be on active duty will depend on what transpires in Afghanistan and whether other crises emerge (including a major change of

conditions in Iraq). A quick resolution of the conflict in Afghanistan could produce savings of roughly ten to twenty billion per year.

On the other hand, there are national security expenditures that do not appear in the DoD budget, as shown in Figure 25. To some extent, these compete with DoD-military for discretionary spending. These include homeland security and veterans affairs/veterans benefits, both of which have been rising for the past decade. Accelerated operating tempos and call-ups of Guard and Reserve forces—such as was the case during the Iraq conflict—can be expected to be reflected in increased veterans benefits several years downstream.

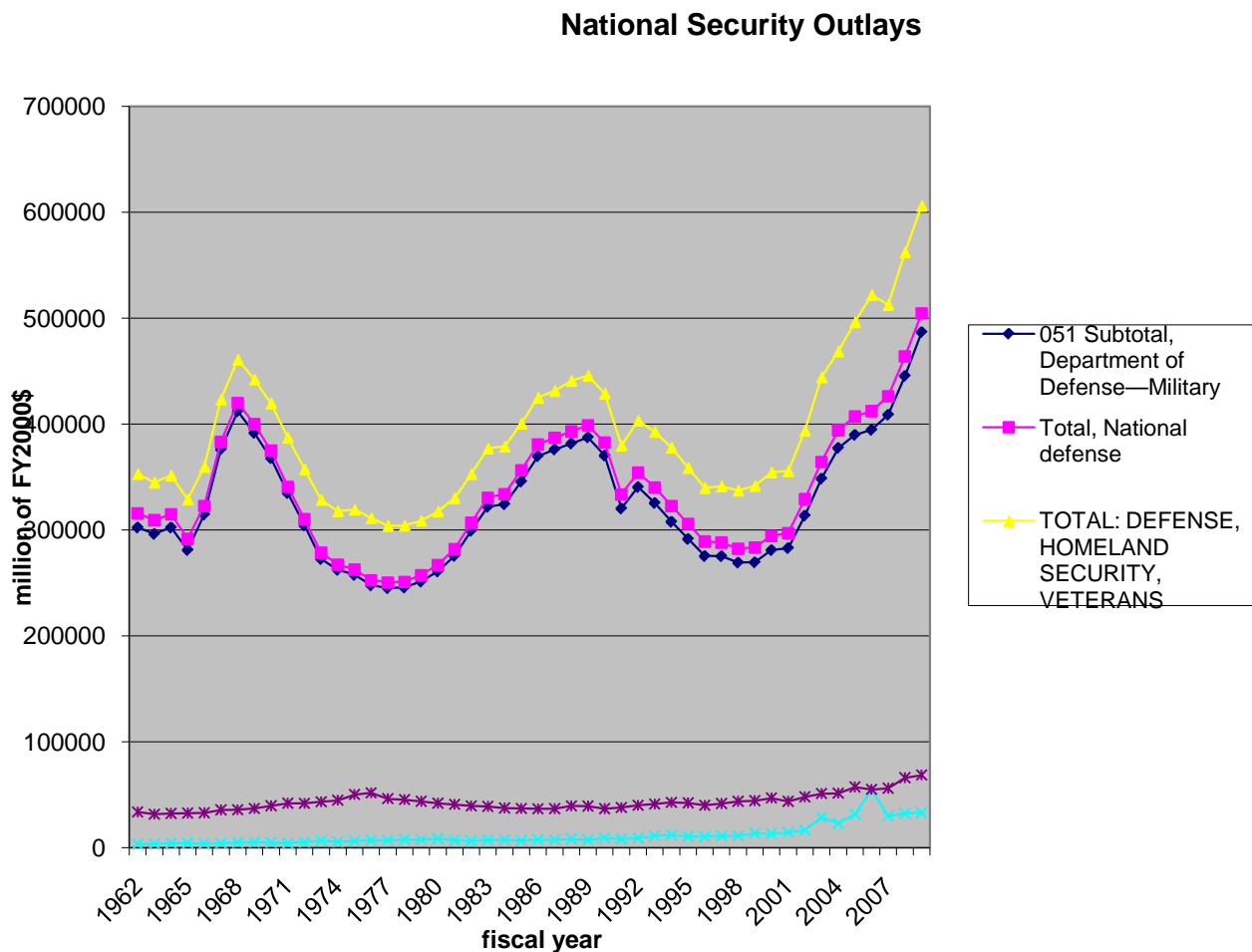


Figure 25. National Security Outlays

Similarly, as CBO Figure 5 (reproduced earlier as Figure 18) shows, OPTEMPO has a major effect on O&M. In 2008, O&M per active duty service member was roughly double the long-term base line. Since O&M is the largest major budget category, uncertainties in commitments and OPTEMPOs produce major uncertainties in budget projections. A quick return to peacetime conditions could, in principle, save a substantial amount of money. This would be offset by the cost of fixing or replacing equipment that has been destroyed or prematurely worn out through use in combat.

Moreover, an unexpectedly quick resolution of the conflict in Afghanistan would have the effect of delaying the projected onset of problems, but would not provide any hope of fully solving them. O&M and MILCON would continue their upward trends, but from a somewhat lower baseline. Indeed, one might argue from a political perspective that sudden relief from conflict commitments could provide a basis for claiming a “peace dividend” and beginning a downward trend that mirrors the post Vietnam and post Cold War periods. It would be unwise to assume that the conflict in Afghanistan would not be replaced by contingencies elsewhere—Pakistan, Korea, Iran, or resurgent problems in Iraq and/or Afghanistan, to name just a few of the most prominent possibilities.

IV. STRATEGIES FOR AVOIDING OR MITIGATING ACQUISITION BUDGET PROBLEMS

Whatever the topline budget profile turns out to be, in the absence of fundamental reforms the budget authority available for acquisition is going to be squeezed by planned and largely inevitable increases in MILPERS and O&M. In general, DoD has two basic strategic approaches available for dealing with this situation: (1) take measures to reduce the predicted increases in MILPERS and O&M, thus freeing up money for acquisition; and (2) manage acquisition over the long term (e.g. five to twenty years) so as to get the most benefit from the reduced funding that is likely to be available.

What follows presents some ideas within these categories based on the author's general familiarity with defense budgeting procedures and recent initiatives. Detailed analysis of the budgetary and operational impacts of adopting any or all of these is beyond the scope of this current effort.

A. CONTROLLING MILPERS AND/OR O&M TO FREE UP FUNDING FOR ACQUISITION

As discussed earlier, both MILPERS and O&M are tied directly to active duty end strength. The connection of MILPERS is quite straightforward, depending almost entirely on—in addition to end strength—pay and benefits. O&M is more complex, depending on deployments, OPTEMPOs, type of equipment (and consumables), and how maintenance is conducted. The Administration has announced its intention to review the role of contractors in providing maintenance.

Options include:

1. Review/Revise the Mix of Active Duty Forces and Guard/Reserve Forces

National Guard and Reserve personnel cost less than active duty personnel, and units activated and deployed create a smaller maintenance burden; although once activated the costs are the same. So reducing active duty end strength and relying more on activating guard and reserve when needed has the potential to generate significant savings. Part of this “Total Force Optimization” savings comes from spending less time training during peacetime than active duty

forces do, which raises the long-standing issue of whether these forces can be adequately proficient. Moreover, experience in Iraq led to public debates over the activation of guard and reserve forces for extended operations. Many units had multiple lengthy deployments, which caused employment (and related economic and business) problems and depleted some state and local emergency response capabilities. Indeed, the greater the rate at which Guard and Reserve forces are expected to be used, the more closely their costs approach those of fully active forces. What mix of forces we need will depend on what sorts of contingencies we expect to be involved in as well as our choice of our steady state routine deployment posture and commitments to domestic defense and response requirements.

2. Reduce Readiness Levels in Selected Units

One reason greater reliance on guard and reserve units saves money is that—guard and reserve units are generally on a longer rotation schedule (i.e. higher rotation ratio; more years between deployments), hence they are typically at lower levels of readiness than active duty units (i.e. they take longer to bring to sufficient strength and proficiency to be deployed/committed).⁴¹ Similar savings might be gained by relaxing readiness requirements for some active duty units. During peacetime, these units would receive less training, and might be staffed at less than their full complements. Less training means less expenditure of consumables, and less wear and tear on equipment. Like activating guard and reserve units, activating units that are at lower readiness levels requires time, and it requires expenditures for training when a decision is made to get the unit ready to deploy. The result would be a force of tiered readiness, with some units always ready, and others at lesser states of readiness. The 4th Marine Corps Division provides a model that might be further extended. (Elements of) This reserve division has fought in World War II, the Korean War, Desert Storm, and OIF.

Fourth Marine Division is the largest ground combat element in the Marine Corps and is comprised of approximately 22,000 Marines across 42 states.... The 4th Marine Division's primary mission is to provide trained combat and combat support personnel and units to augment and reinforce the active component in time of war or national emergency; and to have the capability to reconstitute the division, if required.

⁴¹ Clark A. Murdock and Christine E. Wormuth, *Future of the National Guard and Reserves: CSIS Beyond Goldwater-Nichols Phase III Report*, Center for Strategic and International Studies (CSIS), July 1, 2006.

Three infantry regiments make up the division's fighting backbone: the 23rd, 24th, and 25th. This team is reinforced by the 14th Marine Artillery Regiment, 4th Combat Engineer Battalion and 4th Reconnaissance Battalion. The division is further strengthened by the 4th Tank Battalion, Reinforced and also by 4th Assault Amphibian Battalion and 4th Light Armored Reconnaissance Battalion, Reinforced.

To remain ready for mobilization, 4th Marine Division units participate in approximately 60 annual training exercises annually.⁴²

3. Shift the Mix of Force Types

The contingency in Iraq saw many US units operating in tasks that were not the primary missions for which they had been organized and trained. A few weeks of heavy ground and air combat were followed by several years of very different operations. This has been the general pattern for the entire post-Cold War period. In many cases, this has meant that costly equipment and training have been largely set aside as units were re-equipped and retrained. Operations in Iraq generated requirements for equipment that no units had at the beginning of the conflict. Other nations have had similar experiences, most notably Israel, whose military has been continuously engaged since 1967, but whose last major conventional war was in 1973. In addition to the limited combat operations in Iraq, US forces have been involved in peacekeeping and constabulary duties, among other activities. In hindsight, much could have been saved by equipping and training significant numbers of units for these types of duties, rather than equipping and training most of them for high intensity combined arms combat and then retraining them for other duties. However, doing so reduces the availability of units for heavy combat, which could be a problem should a major war erupt. It may also have adverse morale implications as some units are seen to be receiving the bulk of the modern high technology equipment and associated prestige.

This approach to cost saving is similar to the two above, in that it results in reduced readiness for the most stressing missions. On the other hand, to the extent that continuation of current practices results in underfunding acquisition, that underfunding could similarly result in reduced readiness for the most stressing missions, due to shortages of supplies and equipment. In general, training shortfalls can be remedied over weeks to months, while shortfalls in major equipment can take years to fix.

⁴² Marine Forces Reserve; accessed on December 4, 2009, <http://www.marforres.usmc.mil/HQ/PAO/4thmardiv.asp>.

These three approaches share a common feature in that all result in some US forces being less ready to respond quickly to a crisis that requires major combat forces. Inability to respond quickly with sufficient heavy forces has been a concern since the end of World War II, and crises that require such a response have long been major factors in US defense planning.

4. Reform Maintenance and Support of Operations: Exploit Commercial Practices

The Navy has realized significant benefits from converting its Combat Logistic Force (CLF) supply ships⁴³ from Navy crews under Navy command to civilian crews and civilian masters operating under overall command of the Navy's Military Sealift Command. These benefits include: (1) freeing Navy personnel for other assignments; (2) reducing overall CLF manning levels; and (3) increased number of days at sea per year for each ship.⁴⁴ CLF ships have not reached the level of operational efficiency that is standard for modern merchant marine fleets, but that is to be expected considering the nature of the missions of CLF ships. In recent years, the Navy has explored (and implemented) this concept for other areas of operation.^{45, 46}

This success indicates that, at least under certain circumstances, the adoption of commercial practices can yield savings, efficiencies, and other benefits. On the other hand, heavy use of contractors to provide logistical and other support to forces in Iraq has been much less successful. One Obama Administration initiative has been to take a serious look at the cost of contractor maintenance and support with the goal of possibly realizing cost savings by reducing reliance on contractors. The Military Sealift Command (MSC) CLF approach is not one of shifting to reliance on contractors to provide delivery of fuel, munitions, food and maintenance supplies to ships at sea. It is rather one of hiring civilians to operate ships that belong to the Navy, and adopting some commercial practices for the operation of those ships.

⁴³ Primarily T-AO oilers, T-AKE ammunition and dry cargo ships, T-AE ammunition ships, and T-AOE triple product ships. MSC also operates the T-AH hospital ships.

⁴⁴ Anthony R. DiTripani and John D. Keenan, "Applying Civilian Ship Manning Practice to USN Ships," Center for Naval Analyses, CRM D0011501.A2/Final, May 2005.

⁴⁵ William D. Hatch II, CDR, USN, Charles Gowen, AmerInd/FC Business Systems, James Loadwick, AmerInd/FC Business Systems, "Littoral Combat Ship(LCS) Civilian Aviation Alternative Support Study: Report of Findings and Recommendations," Naval PostGraduate School NPS-GSBPP-04-004, September 30, 2004.

⁴⁶ J.J. Yopp, "Future Seabasing Technology Analysis: Logistics Systems," Center for Naval Analyses, CRM D0014262.A2/Final, August 2006.

5. Greater Reliance on, and Integration with, Allies

One way to reduce the cost of operations is to pass some of it off to other nations. The International Institute for Strategic Studies (IISS) recently opined that the US will have to either rely more on its allies or face retreating from the world stage.⁴⁷ This concept is not new to the US. Allies have participated in most major US operations and contingencies, including: World War II, the Korean war, the Vietnam war, the Cold War, the Balkans, Desert Storm, Iraq, and Afghanistan. However, in most of these since World War II the roles of allies and coalition partners have been very limited and the US carried the lion's share of the burden. Most US allies spend far less of their GDP on defense/military than the US does and all have a much more limited range of capabilities and interests. None come anywhere close to matching the US global reach, and all define their vital interests more narrowly than the US does—particularly since the end of the Cold War. Some allies—notably Japan—have tended to make contributions in logistics and supply in preference to combat forces. Others have contributed where they have capabilities that are excellent by US standards or where US capabilities are relatively thin. Interoperability—including communications connectivity and integration of command and control (C2)—has been a continuing problem, even within NATO where it is most highly developed. Allies have always been generally reluctant to make commitments on anything like the scale that the US does for operations far from home. For its part, the US has been reluctant to share decision-making or to place US forces under the command of other nations. Another problem associated with relying on allies is that the US has to then contend with interests that may not align completely with those of the US. There may be situations in which allied governments may decide not to participate in some specific operation. In other cases, a change of government may lead to a re-evaluation of the ally's participation. For example, on October 13, 2009, the new government of Japan announced that as of January 2010 it would discontinue its role in refueling US Navy ships in the Iraq-Afghanistan theater, a mission Japan has been providing since 2001.⁴⁸

⁴⁷ Raphael G. Satter, "No we can't. UK think tank says US power is fading," *Associated Press*, September 15, 2009.

⁴⁸ Mari Yamaguchi, "Japan to End Naval Refueling Mission," *Associated Press*, October 13, 2009.

6. Design Equipment for Reduced O&M Costs

Clearly, one way to reduce O&M costs is to design and build defense equipment that costs less to operate and maintain. This is inherently appealing, but has to be viewed only as a long term (i.e. ten years and out) solution. Moreover, this is easier said than done—although far from impossible to do. All designs involve trade-offs that include cost, reliability/maintainability, and operational capability. The savings that accrue from designing for lower O&M costs could be offset—and possibly obliterated—by increased costs of engineering and manufacturing.

B. MANAGING THE ACQUISITION BUDGET

1. Determine a Range of Viable Future Acquisition Profiles, and Design a Long-Term Acquisition Program that Fits within that Range

The previous discussion produced several general projections of the acquisition budget over the coming ten to twenty years. Only the most optimistic (i.e. steady real growth in excess of ~1.5% per year) produces an increasing acquisition budget. Prudent planning would probably dictate against relying on such growth materializing. Several projections produce calamity in the form of acquisition budgets that fall to zero over about a decade. For a variety of reasons, these too don't present a viable basis for planning. Others projections—which would therefore be more likely and more prudent bases for planning— include, primarily: (1) a slowly deteriorating acquisition budget (zero real growth total defense budget); (2) acquisition budget that falls dramatically, losing half its value in a decade (-1% real growth in the topline) and then continues to fall; (3) acquisition budget that falls similarly dramatically for a decade, and then recovers in the following decade. (Implementing measures such as those presented in the preceding section can make more money available for acquisition, but not immediately.)

Two observations are in order. First, these “reasonable” projections span relatively small differences in assumptions about the rate of change of the overall defense budget. Second, large amounts of money are at issue. For example, over twenty years, the difference between a constant acquisition budget and one that loses half its value in ten years and then recovers to its 2010 level is well in excess of a trillion dollars.

DoD leadership, like corporate leadership, has usually recognized the need to project resources and plan realistically, but DoD has not generally been successful in doing so in the

past. The reality has typically been to suffer the downturns and get very well on the recovery, both of which are inefficient. While there has been some discussion in the past of “skipping a generation” of new equipment in favor of pursuing development of even more acquisition capabilities, industrial base considerations as well as the high cost of keeping very old equipment in service have generally precluded robust implementation of such a policy.

One major factor in creating acquisition plans is on-going programs, which collectively account for a large portion of future spending. Unless current programs are cut or modified, much of the money projected for the next five to ten years is already spoken for. This is compounded by what has been referred to the “bow wave” effect caused by deferring into the future costs that cannot be covered in the current budget year. FY2010 decisions—notably the termination of the F-22 and paring back the ballistic missile defense program—have helped to reduce the bow wave, which does not appear to be as severe as it was in past years.

Cancelling on-going programs carries inefficiencies, including contractual cancellation costs and increased acceptance of unmet needs. For example, if a major type of equipment is being replaced by a new type as it reaches the end of its service life, cancelling the replacement program could result in having a mix of two types of equipment, the older of which has a high maintenance due to its age. Two types of equipment mean two different maintenance and logistics streams.

Similarly, failure to replace equipment that has been worn out or destroyed during operations (esp. Iraq and Afghanistan) could leave serious gaps in capability. And failure to build equipment that operational experience has demonstrated is very useful could leave similar gaps in capability.

On the other hand—as Secretary of Defense Gates said in terminating the F-22 program—continuing a program when the need no longer exists is also an inefficient use of resources.

These factors and others of similar importance serve to define the constraints and context within which to pursue planning, they do not provide a reason to avoid realistic planning.

Although exploring this in any depth is beyond the scope of this project, we note that the historical cycles in the acquisition budget have helped to stimulate inefficient acquisition planning cycles. As discussed above, the reaction of DoD to the first several years of budget downturns has been to argue that the reductions are a bad idea and to deny that the reductions

will continue beyond the budget year in question. This leads to inefficient spending and to unrealistic expectations, projections, and plans for spending during the FYDP. Trimming back most major programs rather than making a decision to terminate some generally increases program unit costs, which in turn produces shortages relative to planned acquisition rates. This approach similarly supports planning to “get well” during the FYDP years rather than planning to adjust expectations and plans to accommodate falling acquisition budgets. When the planned spending doesn’t materialize, equipment shortages are identified; when budgets turn around, spending is allocated to remedy these shortages as well as for new starts to meet other needs that were deferred. This is often referred to as the “bow wave” effect. Increases produce expectations of continuing increases, so that when budgets begin to level out and then decline the list of unmet needs has again expanded. The Reagan build up, having taken advantage of the economic recovery produced escalating program unit costs and unmet needs/expectations that could not possibly be met when the post Cold War budget downturn began.

2. Suggested Technological Focus: Greater Reliance on Robotics

All three Service departments have had programs in robotics and unmanned vehicles for several decades. Reliance on robotic equipment saves lives by putting machines rather than people in harm’s way, and it has the potential to save money because robotic systems don’t have to be built on a human scale and don’t have to provide life support. In the past, technology has placed major limitations on the ability to realize these goals; but technology has been making major strides in reducing those limits.

Essentially all US military space systems are robotic, and have been since we first went into space.⁴⁹ Space is the environment that most clearly demonstrates the advantages of robotic systems. Space programs have provided a major laboratory for the development of robotic systems. Science and industry use robotics in other severe environments that are not (now) major military venues. These include deep ocean areas, volcanoes (on land and under the sea), and in toxic environments, such as inside pipes and elsewhere.

⁴⁹ Essentially all civil space programs are also robotic. The sole current exceptions are those that are operated from the space shuttle while it is on orbit, and those conducted on the international space station. Both of these are due to end soon. Most of what the shuttle does is: (1) launch satellites, which then operate robotically; (2) deliver personnel and material to the international space station; and (3) conduct repair operations on a very small number of satellites –such as the Hubble telescope—that are within the shuttle’s orbital reach.

As technology has improved, unmanned air vehicles (UAVs) have increasingly replaced and augmented manned aircraft in combat and reconnaissance/surveillance missions. Unmanned underwater vehicles (UUVs) are making strides in taking on ISR missions as propulsion improvements enable higher speeds and longer mission durations. Recently the Deputy Chief of Naval Operations for Information Dominance said that new UUVs offer “a significant opportunity to reduce manpower.”⁵⁰ On the ground, robots have been used in some dangerous missions, including probing and destroying terrorist bombs and clearing minefields. They have not made similar inroads into other ground missions, in large part due to terrain considerations that are largely absent at sea and in the air. This may be a fertile area for further development.

3. Focus Technology More on Reducing Cost and Less on Improving Performance

In a recent interview with *Aviation Week's* “Overhaul and Maintenance,” John B. Johns, assistant deputy undersecretary of defense for maintenance said, “[T]he third pillar (of the maintenance program) has to be influencing the design of our future weapons systems and support systems to ensure that they have the best possible reliability, maintainability and sustainability attributes. This directly impacts future readiness and costs for sustainment, so we must be vigilant up-front in weapon system.”⁵¹

This is the path typically followed in commercial development. Products undergo major generational changes, followed by relatively long periods during which efforts are aimed toward reducing cost of production, improving reliability, and generally decreasing the cost of ownership. How applicable this is to defense systems remains to be seen. Commercial products have quite short life expectations and are aimed at very large markets; most defense systems are bought in comparatively small quantities and expected to last for decades; albeit with occasional upgrades. Each car or television set or computer is typically owned by a different owner. That owner only cares about support for his own unit; the fact that many different models are “out there” is of no direct concern. For defense systems, consistency across many units facilitates maintenance and operation (but isn’t always the case). Commercial products are typically updated at least yearly. Defense systems generally demand longer range continuity. But the

⁵⁰ Navy Vice Admiral David Dorsett, interviewed on “This Week in Defense News,” December 8, 2009.

⁵¹ Interview with John B. Johns, Assistant Deputy Undersecretary of Defense for Maintenance by Lee Ann Tegmeir, “Overhaul and Maintenance,” *Aviation Week*, McGraw-Hill, October , 2009.

major problem with this approach is the perfectly understandable goal of ensuring that our military forces are always equipped with the best possible equipment. And to most Americans, “best possible” means “most advanced technology” not just “good enough.” The result is a continued cultural push for what Secretary Gates has called “exquisite” weapons systems. Breaking this habit would take sustained high level leadership of the type Secretary Gates has recently been providing.

V. FINAL OBSERVATIONS

A basic problem with producing projections some of which lead to disaster, and then discarding the disaster scenarios on the basis that “no one would let that happen” is that there is no guarantee that the disasters could not materialize. One very useful tool for avoiding such disasters is being able to demonstrate sufficiently far in advance the conditions under which they could materialize, thus being able to focus attention before there really is a crisis.

Since 1981, the federal government has been seriously involved in generating large budget deficits and managing a mounting federal debt. While any one deficit is not a disaster, continuing large-scale deficit spending produces continuing large-scale debt service requirements. Debt service consumes revenues “off the top” of the federal revenue stream, leaving less for discretionary spending, which in turn generates pressure to borrow still more. The following table shows projections of outlays generated by the Congressional Budget Office⁵². The numbers are billions of then-year dollars.

Table 1. Projections

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Gross interest	451	382	425	472	536	624	730	817	880	940	980	1060
Defense	686	695	694	700	708	717	729	743	759	775	793	810
Total discretionary spending	1180	1498	1243	1253	1266	1281	1301	1326	1354	1384	1415	1446

According to this CBO projection, debt service (gross interest) will exceed the defense budget in 2014, and will reach almost 75% of total discretionary spending by 2019.

Growing debt service puts pressure on revenues available to fund defense, which in turn provides pressure to reduce the defense budget. In that environment, growing O&M and MILPERS budgets act to put even greater pressure on the acquisition budget. Hence a need to control growth in O&M and to manage the resources available for acquisition, as previous discussed.

⁵² “The Budget and Economic Outlook: An Update,” Congress of the United States, Congressional Budget Office. August 2009.

Management will likely have to take place in an environment in which there are new demands for defense capabilities. For example:

- Global warming has been making the arctic more accessible, and other nations—notably Russia, Canada, Germany, and those Scandinavian countries that have territory north of the arctic circle—have been moving forces and other assets into the region to lay claim to resources and other rights. This will almost certainly generate pressure for the US to increase its presence in the arctic and its proficiency in operating there. This may include upgrading some space assets to provide more effective coverage of the arctic region.
- Attention to space as a warfare domain has increased in recent years. Other nations, notably China but not only China, have stated and demonstrated an interest in increasing their presence in space.
- The cyber domain has similarly been “heating up” in recent years.
- DoD is deeply involved in efforts to combat terrorism worldwide, and to protect against and respond to terrorist attacks.

These new demands will not be met for free.

Major changes in the acquisition budget and in the manner in which those changes are accommodated, are likely to have major effects on the defense technology and industrial base. Some of the budget profiles offered above include deep reductions in acquisition spending over the coming five to fifteen years. Absence of business can put companies out of business. It will be in DoD’s interest to develop strategies that serve both its immediate needs in terms of equipment developed and manufactured, and its longer term interest in maintaining the ability for future development and production.

APPENDIX A LIST OF ACRONYMS

ABL	airborne laser
AIA	Aerospace Industries Association
AVF	All Volunteer Force
BA	budget authority
C2	Command and Control; also C ²
CBO	Congressional Budget Office
CJCS	Chairman, Joint Chiefs of Staff
CLF	combat logistics force
CRS	Congressional Research Service
CSAR-X	Combat Search and Rescue Helicopter
ECI	Employment Cost Index
FCS	Future Combat Systems
FYDP	Future Years Defense Program
GDP	gross domestic product
JHSV	joint high speed vessels
JIEDDO	Joint Improvised Explosive Device Defeat Organization
IISS	International Institute for Strategic Studies
ISR	intelligence, surveillance, and reconnaissance
LCS	littoral combat ship
MILCON	Military Construction
MILPERS	Military Personnel
MKV	multi-kill vehicle
MSC	Military Sealift Command
NATO	North Atlantic Treaty Organization
O&M	operation and maintenance
OCO	overseas contingency operations
OIF	Operation Iraqi Freedom
OMB	Office of Management and Budget

OPTEMPO	operational oempo (tempo of operations)
OSD	Office of the Secretary of Defense
PB	President's Budget
POM	Program Objective Memorandum
RDT&E	Research, Development, Test, and Evaluation
SASC	Senate Armed Services Committee
SECDEF	Secretary of Defense
SLOC	sea line(s) of communication
T-AE	ammunition ship
T-AH	hospital ship
T-AKE	dry cargo/ammunition ship
T-AO	fleet replenishment oiler ship
T-AOE	fast combat support ship
UAV	unmanned air vehicle
USSR	Union of Soviet Socialist Republics; Soviet Union
UUV	unmanned undersea vehicle
WTO	Warsaw Treaty Organization, aka Warsaw Pact

REPORT DOCUMENTATION PAGE				Form Approved OMB No. 0704-0188	
Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing this collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden to Department of Defense, Washington Headquarters Services, Directorate for Information Operations and Reports (0704-0188), 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to any penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number. PLEASE DO NOT RETURN YOUR FORM TO THE ABOVE ADDRESS.					
1. REPORT DATE (DD-MM-YY) December 2009		2. REPORT TYPE Final		3. DATES COVERED (From - To)	
4. TITLE AND SUBTITLE Implications of Defense Budget History for Acquisition Budget 2010-2020				5a. CONTRACT NO. DASW01-04-C-0003	
				5b. GRANT NO.	
				5c. PROGRAM ELEMENT NO(S).	
6. AUTHOR(S) Alan H. Shaw, Gene H. Porter, Frank A. Tapparo				5d. PROJECT NO.	
				5e. TASK NO. AO-6-3022	
				5f. WORK UNIT NO.	
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) Institute for Defense Analyses 4850 Mark Center Drive Alexandria, VA 22311-1882				8. PERFORMING ORGANIZATION REPORT NO. IDA Document D-3995	
9. SPONSORING / MONITORING AGENCY NAME(S) AND ADDRESS(ES) Office of the Director Acquisition Resources & Analysis OUSD(AT&L) 3020 Defense Pentagon Washington, DC 20301-3020				10. SPONSOR'S / MONITOR'S ACRONYM(S) Director, ARA	
				11. SPONSOR'S / MONITOR'S REPORT NO(S).	
12. DISTRIBUTION / AVAILABILITY STATEMENT Approved for public release; distribution unlimited.					
13. SUPPLEMENTARY NOTES					
14. ABSTRACT Since the height of the Vietnam War in 1968, the defense budget has gone through two complete 20 year cycles of decline and recovery, during which the budget topline fell by more than one third in constant dollars. Declines fell disproportionately on the acquisition budget which lost about half of its value in the course of each downturn. This paper examines these cycles, underlying conditions, and measures taken in anticipation of and response to the budget declines, and it observes that the defense budget could be entering another period of decline. Based on history and current conditions, it analyzes the potential effects on the acquisition budget of several different possible defense budget evolutions over the coming decade, notes the potential for severe consequences for acquisition, and suggests possible measures to avoid or ameliorate those consequences.					
15. SUBJECT TERMS Defense Budget, Defense Budget history, Defense Budget projection, Acquisition budget , Historical lessons					
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT UU	18. NO. OF PAGES 78	19a. NAME OF RESPONSIBLE PERSON
a. REPORT U	b. ABSTRACT U	c. THIS PAGE U			19b. TELEPHONE NUMBER (Include Area Code)